A.I.A. FILE No. 12e2

Featherweight CONCRETE INSULATING ROOF SLABS

FEDERAL-AMERICAN CEMENT TILE CO.

CHICAGO · ILLINOIS

CATALOG 103
ROOF STANDARDS ★

A.I.A. FILE No. 12e2

RECEIVED 5-6-38

APPROVED

JOHN J. McMAHON, ARCHITECT.

By J J McM

JOHN J. McMAHON
ARCHITECT
HARTFORD, CONN.

Featherweight PRECAST CHANNEL SLABS

Featherweight CONCRETE INSULATING ROOF SLABS

MODERN • LIGHT WEIGHT
FIREPROOF • PERMANENT
NO MAINTENANCE

INDEX

OVER TWO HUNDRED AND FIFTY MILLION SQUARE FEET OF FEDERAL ROOFS IN SERVICE

MADE, LAID AND GUARANTEED by

FEDERAL-AMERICAN CEMENT TILE CO.

Executive Offices: 608 South Dearborn Street, Chicago

Plants near: CHICAGO - NEW YORK - PITTSBURGH - BIRMINGHAM — Sales Offices in All Principal Cities

For Over Thirty Years

(PRINTED IN U.S.A.) 7370075

Featherweight PRECAST INTERLOCKING SLABS

Featherweight PRECAST NAILING CONCRETE SLABS

TODAY'S LEADING ROOF CONSTRUCTION

● The Precast Concrete Roof has been pioneered and developed by this Company to its present dominant position in the field. Its superiority has been amply proven in actual service over a period of thirty years, on buildings of all types, everywhere — industrial, public and railroad.

Today, the modern *Featherweight* Concrete Roof stands alone in investment value, from every angle of sound construction and service. Its light weight saves structural steel. All expense of painting, repairs and replacement is entirely eliminated. The roof lasts as long as the building. Fire hazard is reduced — insurance rates frequently lowered. No other type of roof offers so many years of continuous service *at so low an over-all cost.*

National Paper Products Co., Port Townsend, Wash. Recovery building roofed with *Featherweight* Concrete Slabs.

Indianapolis Water Works garage, roofed many years ago with *Featherweight* Concrete Insulating Roof Slabs. Archt. W. C. Mabee; Contr. Carl M. Geupel Const. Co.

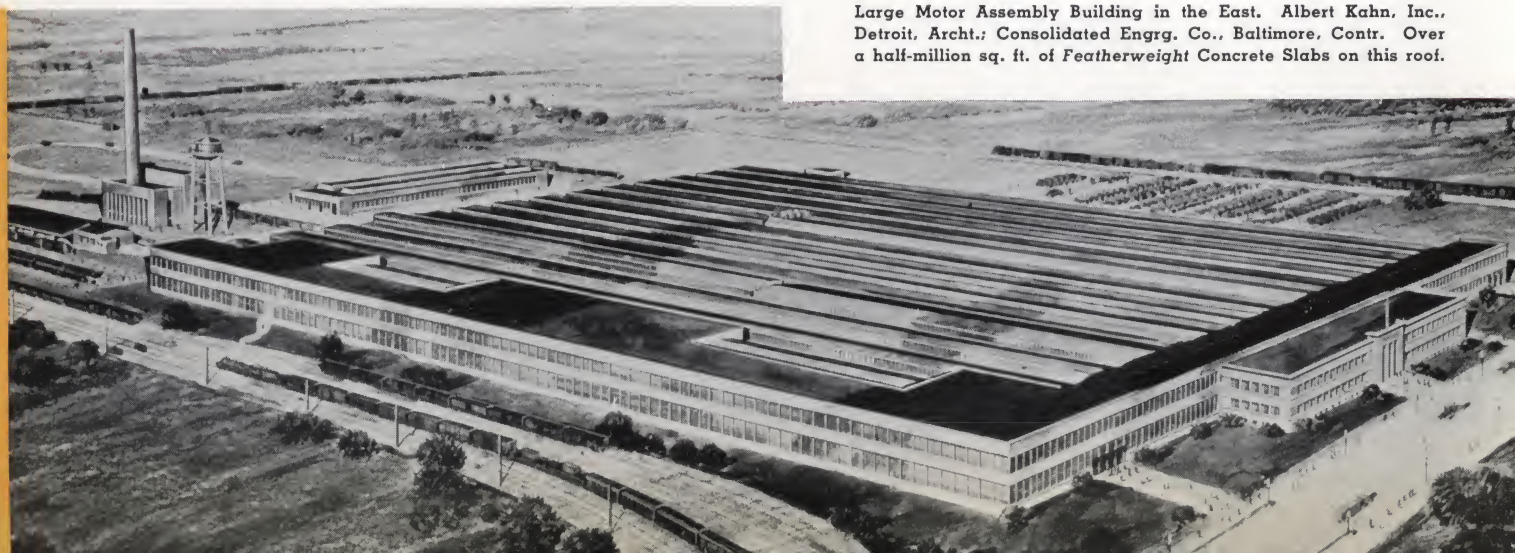
Thirty Years of Roof Experience Assures Sound Structural Value

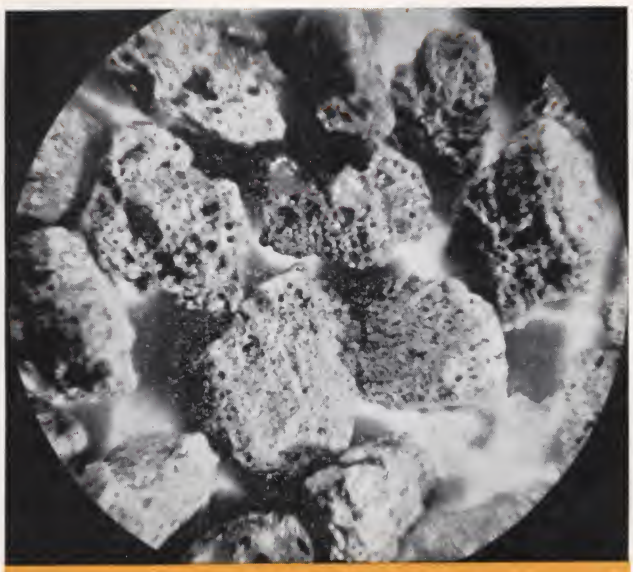
Realizing the comparatively heavy weight of ordinary sand concrete, our engineers began back in 1920 to investigate the merits of light weight aggregates of all kinds. After exhaustive test and trial, Haydite was finally adopted because it not only produced a light-weight concrete, but because its manufacture could be perfectly controlled.

Precast slabs made of this Haydite were placed in our own roof at Hammond, Indiana, and over a period of seven years actually improved in structural strength. Being convinced of the soundness of this aggregate from every viewpoint, we then introduced our well-known *Featherweight* Concrete Slabs, offering at once a permanent concrete of one-third less weight and with a definite insulating value not found in sand concrete.

The many years of research and actual service in the field on buildings of every kind, have proven convincingly the high over-all economy and structural strength of this roof-deck. The savings in supporting steel over the heavier concrete are substantial, and the *Featherweight* Slabs go on the same light steel frame that may be used for less permanent roof materials.

Large Motor Assembly Building in the East. Albert Kahn, Inc., Detroit, Archt.; Consolidated Engrg. Co., Baltimore, Contr. Over a half-million sq. ft. of *Featherweight* Concrete Slabs on this roof.





Micro-photograph of Haydite clinker showing its unique cellular structure. It is the presence of these countless trapped air cells, each with walls of thoroughly vitrified shale, that give *Featherweight* Concrete Insulating Roof Slabs their great strength, light weight and insulating value.

HAYDITE AGGREGATE PROVIDES MILLIONS OF TRAPPED AIR CELLS

● *Featherweight* Concrete is produced by combining Portland cement with Haydite, an inert lightweight aggregate used instead of sand.

This aggregate — burned shale — is a manufactured product, made under positive control and supervision of both raw material and processes. It enters as a scientific ingredient into the production of our high quality concrete.

The shale is ground and then burned at a temperature of over 2000 degrees Fahrenheit in rotary kilns of the same type as used in the manufacture of Portland cement.

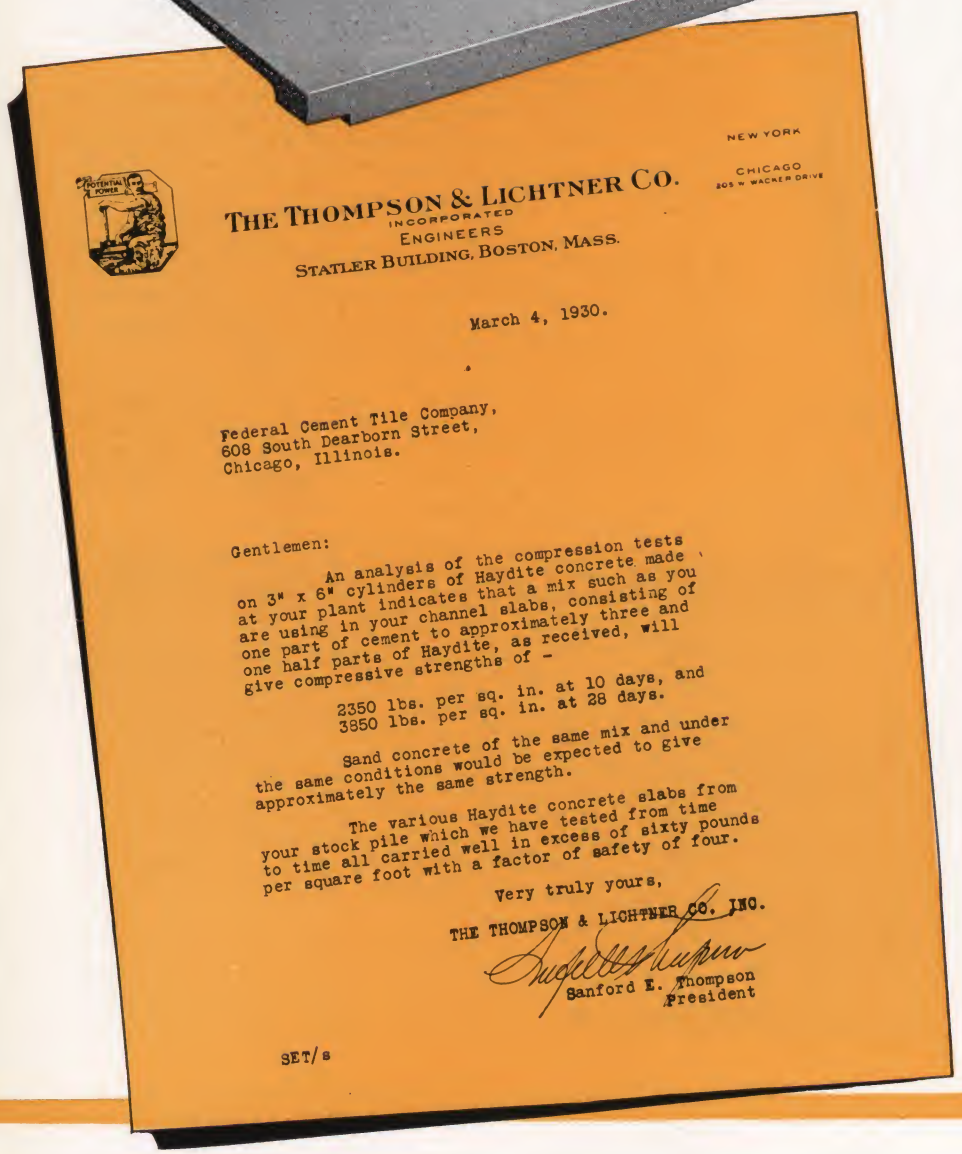
As a result of this process, the shale becomes viscous — incipient fusion has taken place, the carbon content has oxidized and formed gases, causing the shale to expand into an inert lightweight, cellular structure. The expansion process is so complete that even the finest particles show an ideal cellular structure when magnified. Note illustration above.

The resultant product is a series of trapped air cells, the partitions of which are thoroughly vitrified, fused shale, impervious and of great structural strength.

It is to be noted that the Haydite concrete used in *Featherweight* Slabs is much superior to that used in ordinary building blocks, both in density and color.

WGN Broadcasting Station, Chicago. A modern, prominent building roofed with *Featherweight* Nailing Concrete and Channel Slabs. Archt. Leo J. Weissenborn; Contr. R. C. Wieboldt Company.

Theodore Hamm Brewing Company Power House, St. Paul, Minn., with roof-deck of *Featherweight* Concrete Insulating Roof Slabs. Archt. C. H. Johnston; Contr. Lindstrom & Anderson.



NEW YORK

CHICAGO
205 W. WACKER DRIVE

THE THOMPSON & LICHTNER CO.
INCORPORATED
ENGINEERS
STATLER BUILDING, BOSTON, MASS.

March 4, 1930.

Federal Cement Tile Company,
608 South Dearborn Street,
Chicago, Illinois.

Gentlemen:

An analysis of the compression tests on 3" x 6" cylinders of Haydite concrete made at your plant indicates that a mix such as you are using in your channel slabs, consisting of one part of cement to approximately three and one half parts of Haydite, as received, will give compressive strengths of -

2350 lbs. per sq. in. at 10 days, and
3850 lbs. per sq. in. at 28 days.

Sand concrete of the same mix and under the same conditions would be expected to give approximately the same strength.

The various Haydite concrete slabs from your stock pile which we have tested from time to time all carried well in excess of sixty pounds per square foot with a factor of safety of four.

Very truly yours,

THE THOMPSON & LICHTNER CO. INC.

Sanford E. Thompson
President

SET/s

A *Featherweight* ROOF SLAB . . . YET OF STRONG AND PERMANENT CONCRETE

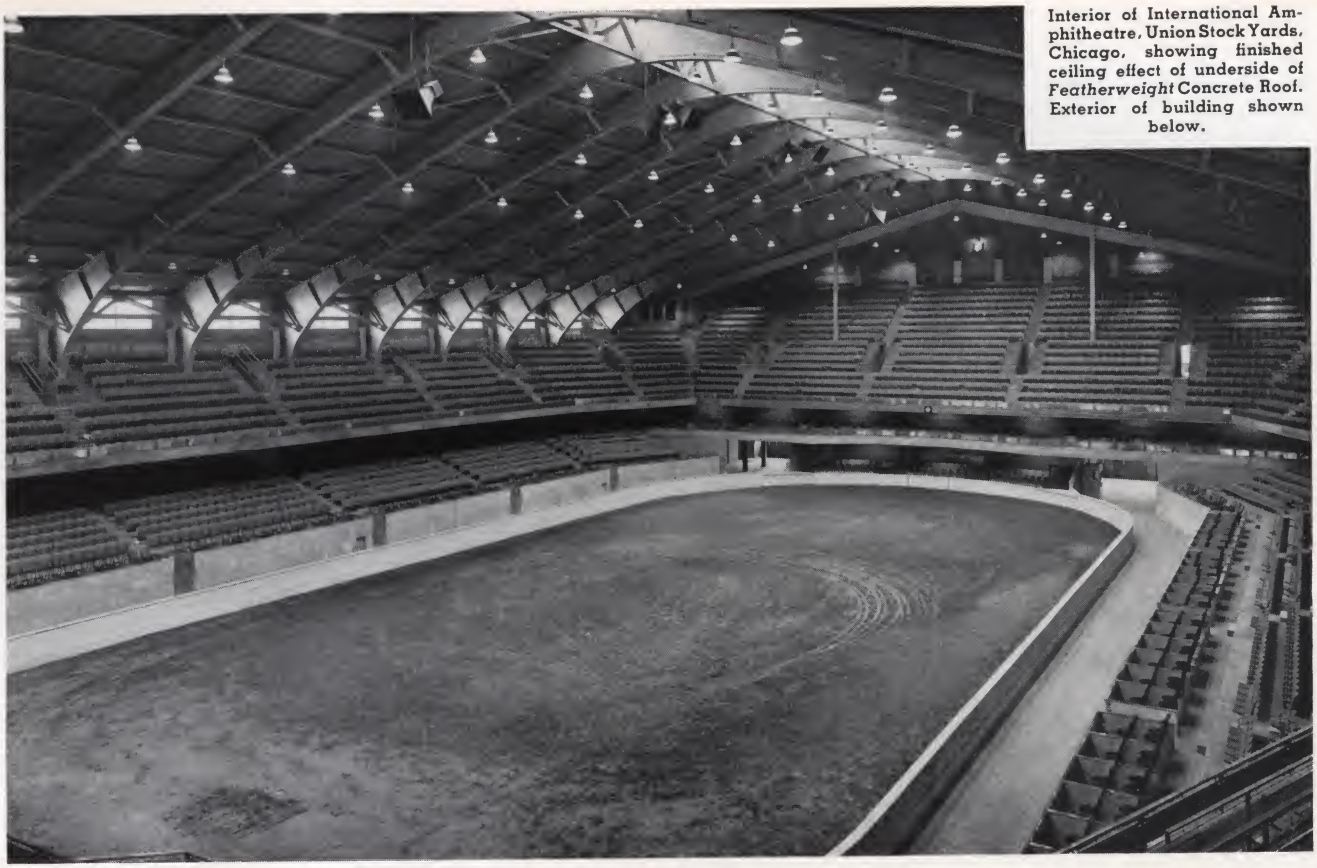
● Although the use of the highly cellular aggregate in conjunction with the scientific design of the slab, produces a light weight concrete unit, it is to be noted that there is no sacrifice of structural strength and soundness.

It is a fact that *Featherweight* Concrete Slabs taken out of industrial roofs and tested after many years of service, have shown ***greater structural strength than when first installed.*** These same slabs, broken open for inspection, have disclosed perfect internal condition, unaffected by years of exposure to the elements.

Mechanical vibration produces a dense, impervious structure. The cellular nature and irregular shape of the aggregate particles insure an intimate and close-knit bond with the cement. As manufactured under our ideal conditions, the *Featherweight* Concrete Slab comes as close to perfect concrete as it is possible to produce. It carries safely, a load well above all building code requirements.

Note this letter from an international authority on concrete, attesting to the great strength of *Featherweight* Concrete Insulating Roof Slabs.

Aviation Building of the Bendix Aviation Corp., South Bend, Ind., with almost 300,000 sq. ft. of *Featherweight* Concrete Roof Slabs, representing only about half the area of Federal Roofs erected for this company. This roof-deck was laid in winter weather without interruption or delay. Archt. and Contr. H. G. Christman Co.



Interior of International Amphitheatre, Union Stock Yards, Chicago, showing finished ceiling effect of underside of *Featherweight* Concrete Roof. Exterior of building shown below.

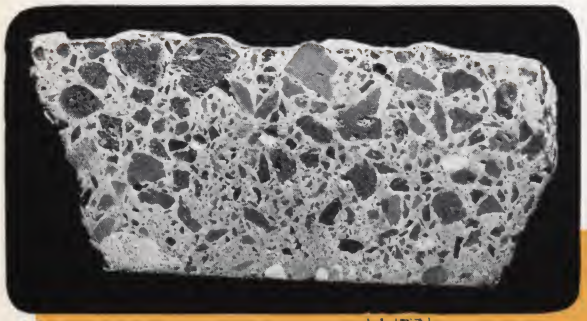
LONG SPAN *Featherweight* PRECAST CONCRETE SLABS PROVIDE A PERMANENT ROOF WITH A SUBSTANTIAL SAVING IN STRUCTURAL STEEL

● Our engineers have devoted years of research and development to the study of both roof slabs and the steel frame to support them. The ***Featherweight*** Concrete Insulating Roof Slab is the nearest approach to the ideal in over-all economy.

The design of this slab represents the most advantageous distribution of the concrete. It is available for long spans (made to fit your purlin spacing). Its light weight not only permits of *fewer* steel purlins, but *lighter* ones as well.

The result is a structural steel frame of the lightest possible weight and cost, consistent with the strength and service essential to good roof construction. It is a significant fact that ***Featherweight*** Concrete Slabs go on the same light steel frame that carries other roofs. The added value of this precast concrete deck — in permanence, fire-safety, savings in maintenance — has made it the logical choice of architects, engineers, and owners, for buildings of all types, from foundry to schoolhouse.

International Amphitheatre at Union Stock Yards, Chicago. A. Epstein, Engr.; Poirot Construction Co., Contrs. 60,000 sq. ft. of permanent, fireproof *Featherweight* Concrete Slabs.



Photograph of cross section of Haydite concrete slightly enlarged, showing the dense, impervious structure of the concrete and the cellular nature of the Haydite.

INSULATING VALUE WITHOUT SACRIFICE OF STRUCTURAL QUALITIES

● The millions of individual trapped air cells in Haydite aggregate, the partitions of which are thoroughly vitrified, provide pockets of dead air that set up a definite insulation against the passage of heat and cold, not possible in ordinary concrete. This insulating value is provided without affecting in any way the structural strength of the concrete.

The Co-efficient of Heat Conductivity for a slab of this concrete, one inch thick, is 1.82 British Thermal Units per hour per square foot, per degree Fahrenheit difference in temperature.

The Co-efficient for a similar slab of sand concrete is 6 to 8, approximately three to four times as great, so that a *Featherweight* Concrete roof-deck is actually a much better heat and cold insulator than a sand concrete deck.

Because of this low thermal conductivity, the heat loss through the roof is held to a minimum. Note the authoritative test results shown in letter at left.

CHICAGO

THE THOMPSON & LICHTNER CO., INC.
Engineers
STATLER BUILDING, BOSTON, MASS.

March 26, 1930

Federal Cement Tile Company
608 South Dearborn Street
Chicago, Illinois

Gentlemen:

We give you herewith the results of the thermal conductivity tests made by the "Hot Plate" method on an 18" square by 1" thick specimen of Haydite "Featherweight" concrete.

Material	Thickness Tested	Density	Coefficient of Thermal Conductivity
Haydite Concrete	1.04"	73.0 #/cu.ft.	1.88
Haydite Concrete	1.06" / 1.05"	75.0 #/cu.ft. / 74.0 #/cu.ft.	1.77 / 1.82

The Coefficient of Thermal Conductivity is expressed in B.t.u. per hr., per sq.ft., per inch thickness, per 1°F. temperature difference between surfaces.

The thermal conductivity of ordinary concrete is usually considered as being approximately 6 to 8 B.t.u. per hour.

Very truly yours,

THE THOMPSON & LICHTNER CO. INC.

SAFFORD E. THOMPSON
President

SET:AM

Potomac Electric Power Co., Washington, D. C. Buzzard Pt. Plant. Stone & Webster Engr. Corp., Engrs. & Contrs. Over 32,000 sq. ft. of Federal Slabs.

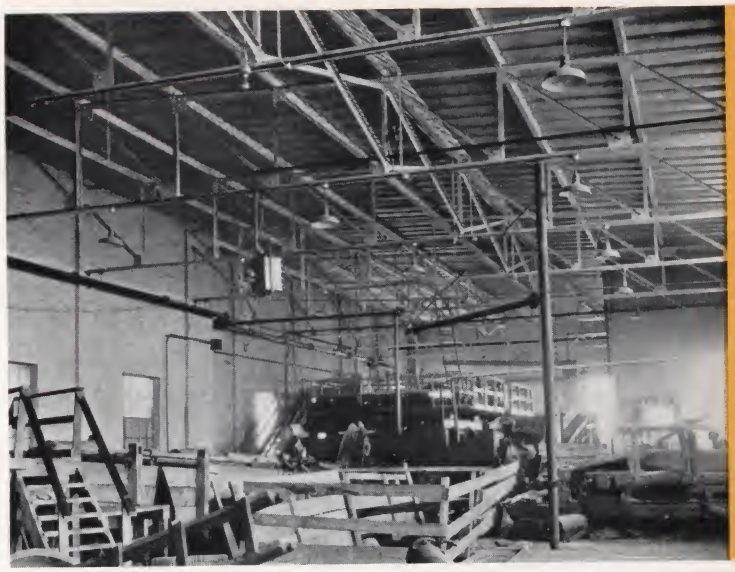
CORK INSULATED SLABS OFFER ACOUSTICAL PROPERTIES . . . .

● It is frequently desirable to make provision for sound deadening, to improve the acoustics of schools, auditoriums, gymnasiums, swimming pools, offices and the like. Sometimes also, a super-insulation is desired, for use in extreme conditions such as on certain types of paper mill buildings, power houses, etc.

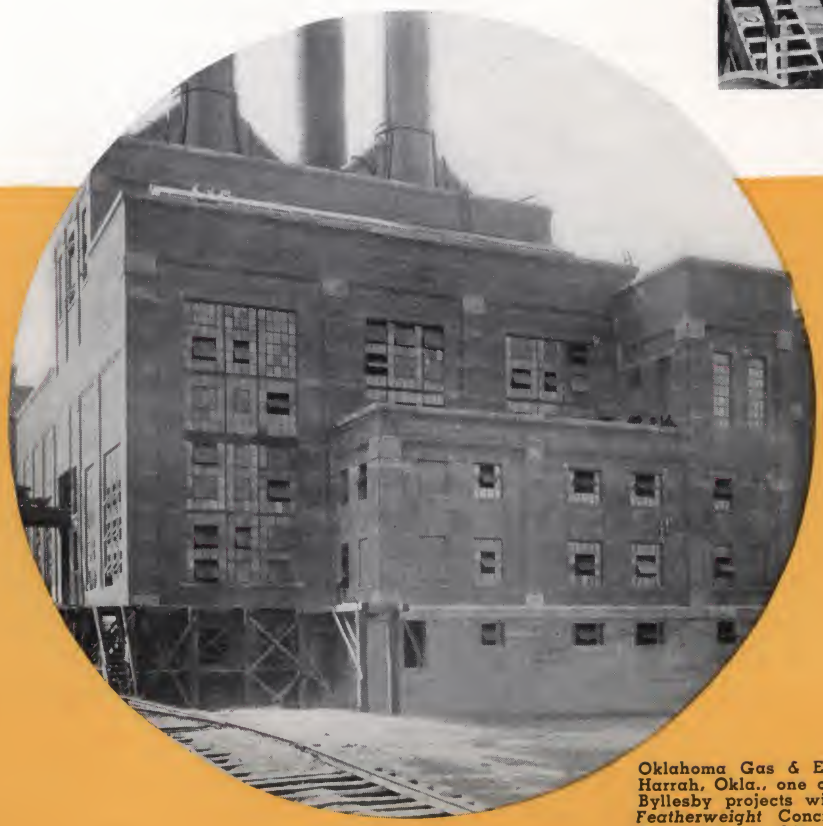
Federal Cork Insulated Slabs provide this acoustical value without the use of supplementary treatment, and afford extra insulation as well. The slabs are cast integrally with a layer of cork on the underside, or inserted in the body of the slab, forming a complete factory-made unit. The cork on the underside is susceptible to any decorative treatment desired for architectural appearance.

Illustration at the top shows Federal Cork Insulated Slabs over a gymnasium, and below on a paper mill building and power house.

Sisters of Mercy of Allegheny County, Activities Bldg., Pittsburgh, Pa. Kaiser, Neal and Read, Archts.; David T. Riffle, Contr. Roofed with *Featherweight* Nailing Concrete Slabs with Cork Back.



Wood Room of the Rhinelander Paper Co., Rhinelander, Wis., with roof of Federal Cork Insert Slabs. Note the finished ceiling effect.



Oklahoma Gas & Electric Co., Harrah, Okla., one of the many Byllesby projects with roofs of *Featherweight* Concrete Slabs. A portion of this building is covered with Cork Insulated Slabs.

Raleigh Memorial Auditorium, Raleigh, North Carolina. An excellent example of a modern, permanent public building roofed with *Featherweight* Nailing Concrete Slabs. Archt. Atwood & Weeks, Inc.; Contr. York Constr. Company.

ADVANCED METHODS AND EXTENSIVE FACILITIES ASSURE EFFICIENT MANUFACTURE

● All Federal slabs are made in our own fireproof daylight factories, the largest roof slab plants in the country, developed and perfected over a period of 30 years. The conditions for mixing and casting concrete are ideal, temperature and moisture as well as all other factors being held under strict *quality control*, and mechanical equipment as well as the human element at their best for efficient handling. Almost laboratory exactness is attained.

Steel Reinforcing Accurately Located

For producing *Featherweight* Concrete slabs, the scientifically proportioned, controlled mix is placed in a rigid steel mold, with the steel reinforcing mechanically held in its most advantageous position in relation to the concrete, and properly protected.

Mechanically Vibrated

This form is then vibrated at a rate of 2500 blows per minute, giving a dense, impervious concrete. The result is a strong concrete slab, yet with the light weight that saves steel in the superstructure. The steel mold, together with the vibration, imparts a smooth, under-finish to the slab, producing an attractive ceiling effect of natural cement color. No painting is necessary.

The slabs are laid directly on the steel roof purlins and the joints cemented on the upper side with asphaltic cement, ready for the composition covering to be mopped in place. *Featherweight* Concrete slabs are equally adapted for flat or pitched roofs.

American Locomotive Company, Shop Building, Schenectady, New York covered with *Featherweight* Concrete Insulating Roof Slabs. The underside of this roof needs no painting or other treatment.

City of Milwaukee, Wis., Filtration Plant typical of modern municipal buildings roofed with *Featherweight* Concrete Slabs. Archt. City of Milwaukee and Alvord, Burdick & Howson; Contr. Kroening Engr. Corp.

THE LOWEST COST PERMANENT ROOF OBTAINABLE . . . . .

● "CONCRETE for permanence" is today far more than a slogan. It is established practice, approved by foremost architects and engineers whether for a bridge, the foundation of a building or a highway across the country. *Precast factory made and cured concrete is concrete at its best*—far better than concrete poured in the field under varying weather conditions.

The precast concrete roof outlasts the rest of the structure and throughout its entire life requires *no painting, repairing or other maintenance* whatever. It is *fireproof*—to an even higher degree than ordinary concrete —and usually brings the benefit of lower insurance rates. It is *immune* to the disintegrating effects of steam, smoke, water, heat, cold, rust, gases and fumes.

Slabs Are Speedily Laid in Any Weather

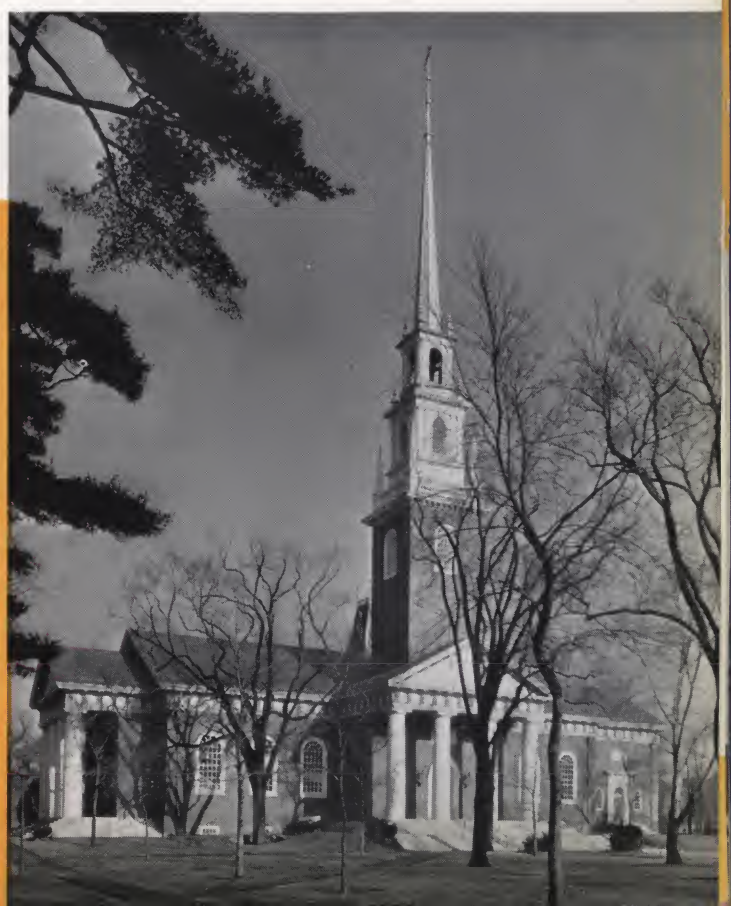
Every job is individually engineered and detailed, and each slab is numbered to fit its own position in the roof. There is no cutting. Delay is avoided in the construction of the building, since the slabs are manufactured while the structural steel is being fabricated.

They are easily and quickly erected, being handled direct from box cars to roof. Weather conditions are no bar — Federal slabs go on as readily in winter as in summer. We maintain our own skilled erecting organization available anywhere in the country to insure a perfect job at high speed for early occupancy.

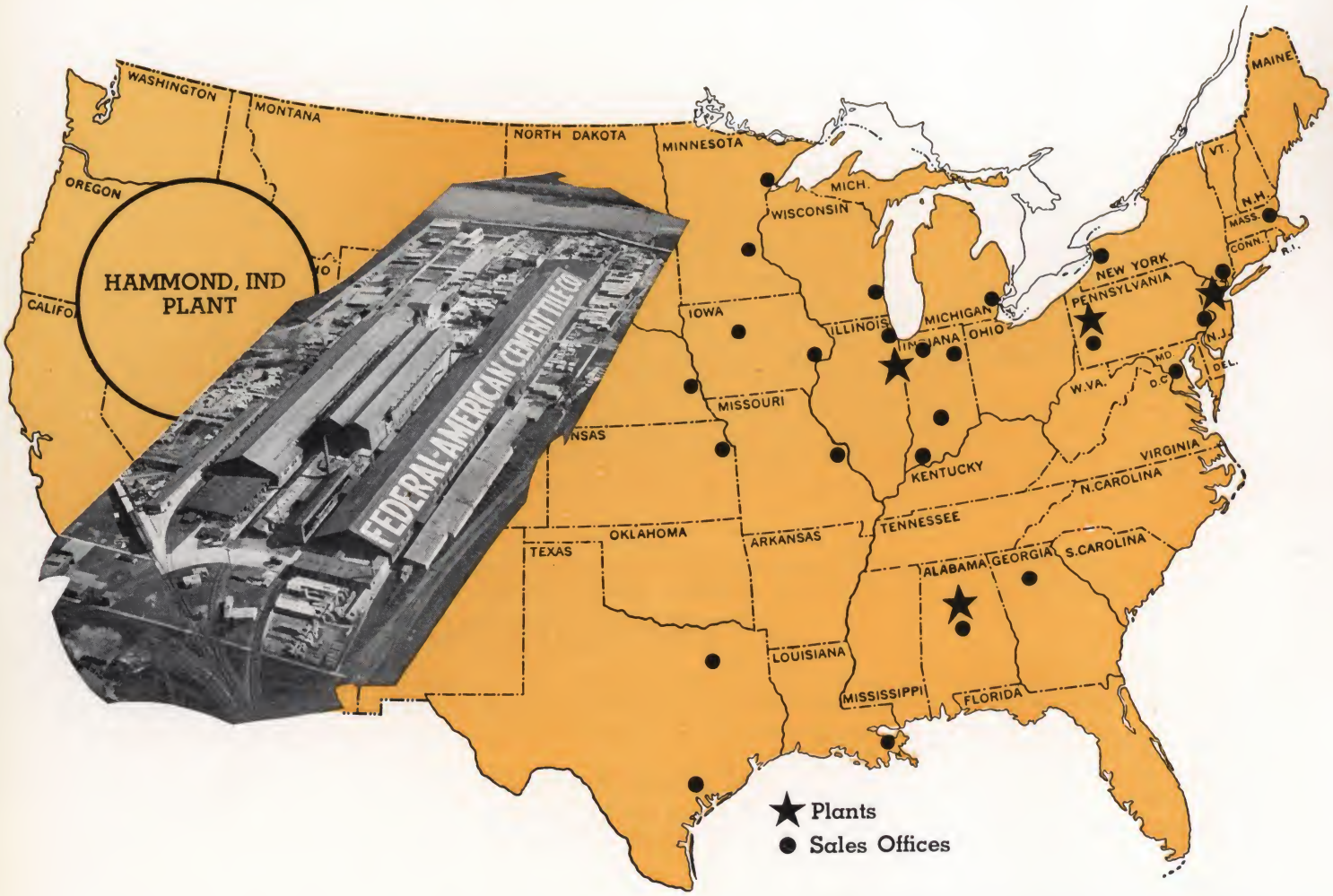
Ready At Once for Composition Covering

The slabs form a hard, dry, surface for the composition covering so that it adheres firmly and smoothly. Furthermore, no time is lost waiting for the roof-deck to dry out before the composition is mopped on. *All Federal roofs are fully guaranteed.*

Full information and recommendations for the most economical layout of both structural steel and slabs for any project, gladly furnished by our engineers without obligation.



Appelton Memorial Chapel, Harvard University, Cambridge, Mass. Permanent public buildings of this type naturally call for permanent, fireproof *Featherweight* Concrete Insulating Roof Slabs. Archt. Coolidge, Shepley, Bulfinch & Abbott, Inc.; Contr. Hegeman, Harris Co., Inc.



4 EFFICIENT PLANTS
STRATEGICALLY LOCATED, ASSURE PROMPT DELIVERY

● Roof contracts placed with Federal, no matter how large, have quadruple assurance of being delivered complete and on time. Four plants, each thoroughly equipped for the most efficient manufacture of precast concrete roof slabs, are located as shown on the map, to serve quickly and economically, practically any part of the United States and Canada.

Experienced Organization of Permanent Responsibility

In addition, the Federal organization offers the services of experienced roof engineers, located in principal cities over the territory, and available for assistance in laying out the most economical combination of structural steel and roof slabs, for any type of building.

Back of plants and offices, stands a sound responsibility built up over 30 years of successful roof service. This responsibility is your assurance that your contracts with us will be carried out to the letter — that your Federal Roof will give you the service you expect, today and during its entire long lifetime.

WHAT OTHER ROOF DECK CAN OFFER ALL OF THESE MANY ADVANTAGES?

● PERMANENCE—Reinforced concrete needs no brief today for its time-defying qualities. No other material can possibly equal concrete for permanence. No Federal roof-deck has ever been known to wear out.

● FIREPROOFNESS—A concrete roof-deck is a safeguard against the ravages of fire and resulting interruptions to your activities. This safety factor is acknowledged by all authorities; insurance companies frequently quote lower rates.

● NO MAINTENANCE—because being concrete, this roof-deck requires no painting, repairing or replacement.

● IMPERVIOUS—to heat, cold, water, rust, steam, smoke, fumes and other disintegrating elements. Immune to these destructive forces, the precast concrete roof-deck is the most practical construction obtainable for all industrial, railroad and public buildings.

● STRENGTH WITH LIGHT WEIGHT—*Featherweight* Concrete slabs are as strong as sand concrete yet light in weight. This light weight effects definite economies in the entire steel superstructure.

● INSULATING VALUE—The cellular structure of *Featherweight* Concrete slabs, embodying countless trapped air cells, gives insulating qualities unique in concrete, without sacrifice of strength.

● SPEED OF ERECTION IN ANY WEATHER—Being factory-made the precast concrete slab is detailed by experienced draftsmen to fit the structural steel and is shipped to the job and handled direct from cars to roof. The entire roof-deck is speedily erected, *regardless of temperature conditions.*

● PERFECT BASE FOR COMPOSITION ROOFING—hard and dry. The covering adheres firmly and smoothly and lasts longer, without maintenance. *No delay waiting for roof-deck to dry out before applying the composition covering.*

● ATTRACTIVE APPEARANCE—The underside of these slabs presents a finished ceiling of natural cement color which in itself is so pleasing as to require no other covering, painting or treatment.

● ONE RESPONSIBILITY—The precast concrete roof-deck is furnished by Federal, laid by our own force of skilled, experienced men and is guaranteed by the same organization—a guarantee backed by integrity, reputation and resources. Four plants assure prompt delivery of jobs of any size.

● ENGINEERING SERVICE—An experienced staff of roof engineers offers practical co-operation on any job anywhere in the country. These engineers know roof design and construction, and are qualified to work with you on the most economical layout of both structural steel and slabs. Your inquiries are invited—no obligation entailed.

Scott Paper Co., Chester, Pa., Paper Machine Building. Stone and Webster Engr. Corp., Engrs. and Contrs. Roof and ceiling of *Featherweight* Concrete Slabs.

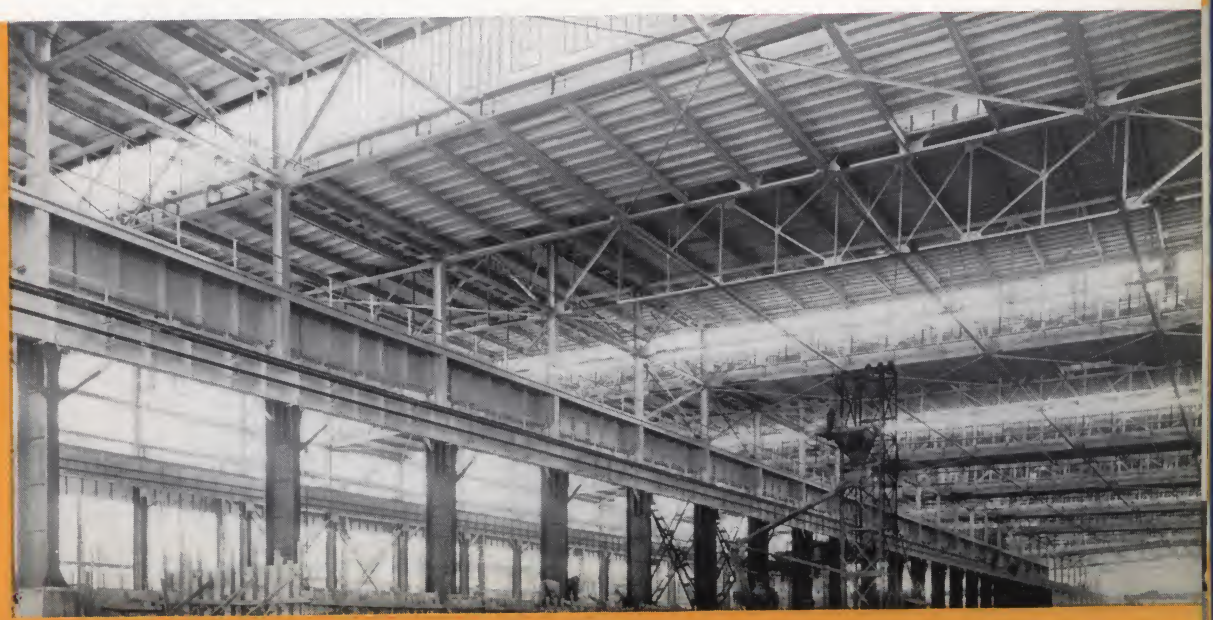
Beverly Theatre, Chicago, roofed with *Featherweight* Concrete Slabs. This is but one of many beautiful theatres around the country protected by Federal Roofs. Archt. R. F. Perry; Contr. J. W. Snyder Co.

Shushan Airport, New Orleans, La. Weiss, Dreyfous and Seiferth, New Orleans, Archts., Caldwell Bros., New Orleans, Contrs. Roofed with over 50,000 sq. ft. of *Featherweight* Concrete Slabs.

Cudahy Packing Plant, Albany, Georgia, a modern glass-wall building with a modern *Featherweight* Concrete Roof-Deck of almost 40,000 sq. ft. area. Engnr. T. J. Byrnes, Cudahy Packing Co.; Contr. Fiske-Carter Constr. Co.

Deere and Co., Waterloo, Iowa, one of many buildings roofed for this company with *Featherweight* Concrete Insulating Roof Slabs. Archt. O. A. Eckerman.

Inland Steel Co., Indiana Harbor, Ind., Strip Mill. There are over 800,000 sq. ft. of Federal Roofs in service at this plant.



Georgia Tech Auditorium, Atlanta, Georgia. The roof-deck of *Featherweight* Concrete Slabs assures continuous use of the building without interruption to activities. Archt. Dept. of Architecture, Georgia School of Technology; Contr. H. B. Nelson Const. Co.

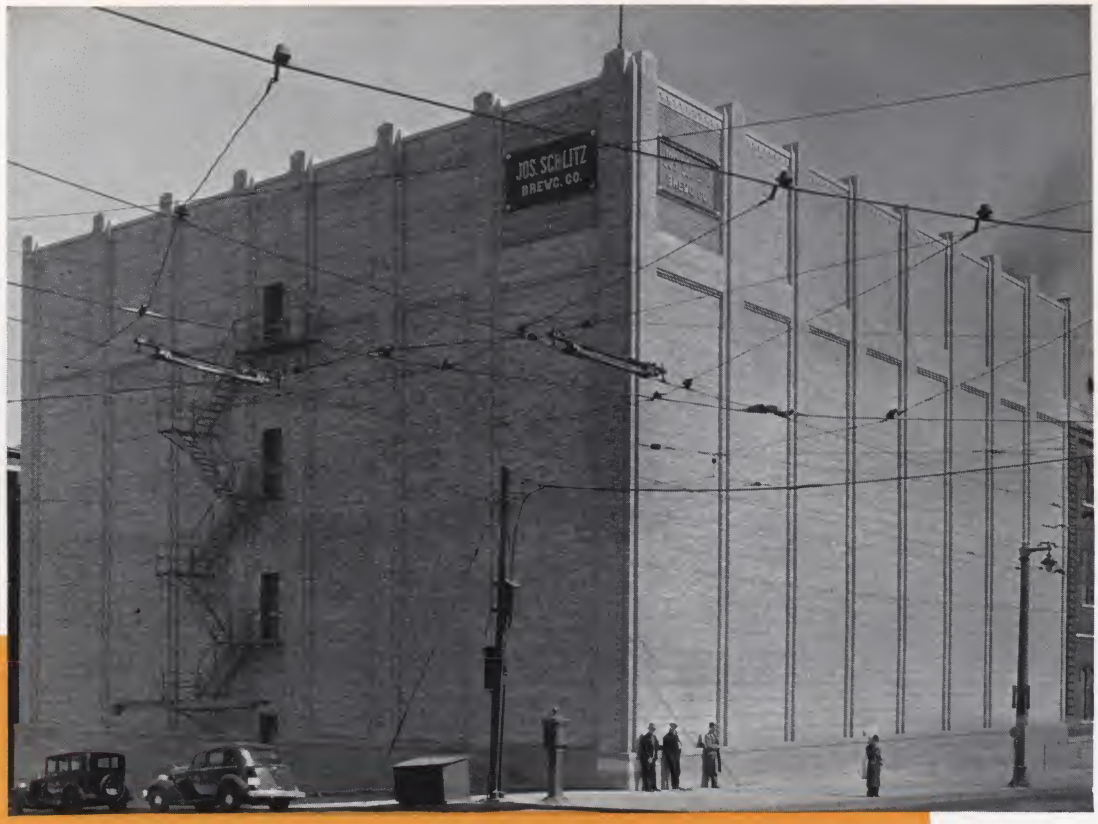
Allis-Chalmers Mfg. Co., Springfield, Illinois, covered with *Featherweight* Concrete Insulating Roof Slabs. Note the saw-tooth design and the attractive underside of the roof which requires no painting or other treatment. Archt. Helmle & Helmle; Contr. Permanent Construction Co.

Leal School, Urbana, Illinois, designed for permanence and fire-safety and roofed with *Featherweight* Concrete Slabs. Archt. Royer & Smith; Contr. Wm. C. F. Kuhne.

Electro - Motive Corp. Works, McCook, Illinois, a building of modern welded steel construction, manufacturing modern Diesel locomotives and roofed with modern *Featherweight* Concrete Slabs. Engineers and Builders, The Austin Company.

Brown Funeral Home, Birmingham, Ala. Built for beauty and permanence and roofed with *Featherweight* Nailing Concrete Slabs. Archt. D. O. Whilldin; Contr. Mann Bros. Bldg. Co.

John Morrell & Co., Ottumwa, Ia. H. P. Henschien, Chicago, Archt. A number of these buildings are covered with *Featherweight* Concrete Slabs.



Jos. Schlitz Brewg. Co., Milwaukee, Wisconsin, a modern brewery building roofed with *Featherweight* Concrete Insulating Roof Slabs. Many brewery buildings have been similarly protected with this roof-deck. Contr. Meredith Bros. Company.

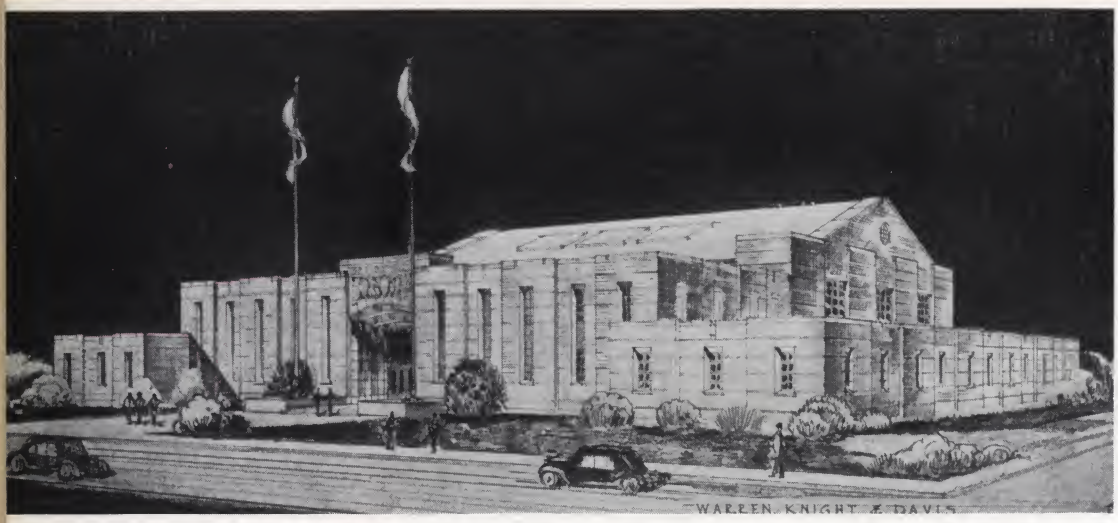
Todd & Orrison Garage and Office Bldg., Washington, D. C., roofed with firesafe *Featherweight* Concrete Slabs. Archt. Barber & Ross; Contr. James L. Parsons.

Burlington Railroad Coach Shop, Aurora, Illinois, covered with *Featherweight* Concrete Insulating Roof Slabs. Railroads find it good business to use Federal Roofs. Contr. G. A. Johnson & Son.

Sheahan Pumping Station, Memphis, Tenn., one of scores of utility buildings all over the country roofed for permanence and fire-safety with *Featherweight* Concrete Slabs. Archt. Jones-Furbinger-Jones & Fuller, McClintock; Contr. S. & W. Construction Company.

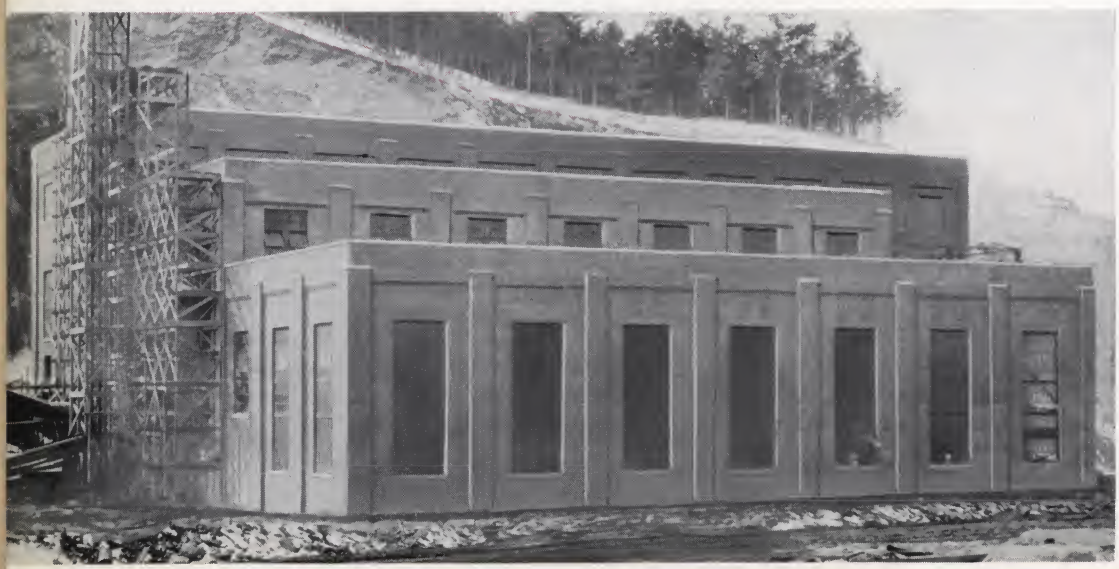
Titanium Pigment Plant, Sayreville, N. J., subsidiary of National Lead Company. Many buildings of this group are protected with *Featherweight* Concrete Insulating Roof Slabs. Engrs. & Builders: Wigton, Abbott Corp., N. Y. C.

Villa Nova College Natatorium, Villa Nova, Pa., a modern activities building roofed with *Featherweight* Nailing Concrete Slabs for permanence and fire-safety. Archt. Paul Monaghan; Contr. Wark Co.



Alabama National Guard Armory, Birmingham, with a modern roof-deck of *Featherweight* Concrete Slabs which will last as long as the rest of the building. Archt. Warren, Knight & Davis.

Locker Building of the Merrimac Chemical Co., Everett, Mass. This concern has many other buildings similarly covered. Lockwood Greene, Engrs.; Contr. John F. Griffin Co.



Homestake Mining Co., Lead, S. D. Power Plant covered with over 30,000 sq. ft. of *Featherweight* Concrete Slabs. Plans by Worden, Allen Co.

Large Motor Company, Commercial Body Plant in the Middle-West, another of the many buildings of this outstanding company, roofed with *Featherweight* Concrete Insulating Roof Slabs. Archt. Albert Kahn, Inc.; Contr. W.E. Oneil Const. Co., Chicago.

S. Industrial Alcohol Co., New rleans, La., plant, part of which covered with *Featherweight* Concrete Insulating Roof Slabs.

Union Bag & Paper Corp., Savannah, Ga. Many of the buildings of this plant are roofed with *Featherweight* Concrete Slabs. Engr. George F. Hardy, New York; Contr. Merritt-Chapman & Scott Corp.

SOME USERS OF FEDERAL PRECAST CONCRETE ROOF SLABS

AUTOMOBILES AND AUTO ACCESSORIES

A. C. Spark Plug Company, Flint, Mich.
Automotive Gear Works, Richmond, Ind.
Briggs Manufacturing Company, Detroit, Mich.
Buick, Flint, Mich.
Cadillac, Detroit, Mich.
Checker Cab Manufacturing Co., Kalamazoo, Mich.
Chevrolet, Coast to Coast
Chrysler, Detroit Newcastle, Walkerville, Ont.
Dodge, Detroit, Mich.
Fisher Body, Detroit, Lansing, Mich.; Tarrytown, N. Y.
Ford, Coast to Coast
Goodyear Tire & Rubber Co., Gadsden, Ala.
Graham-Paige, Detroit, and Wayne, Mich.
Hudson, Detroit, Mich.
Kelsey-Hayes Wheel Company, Detroit, Mich.
Mack Truck, Milwaukee, Wis.
Nash, Kenosha and Racine, Wis.
Oldsmobile, Lansing, Mich.
Packard, Detroit, Mich.
Pontiac, Pontiac, Mich.
Reo, Lansing, Mich.
Seiberling Rubber Co., Barberton, O.
A. O. Smith Corp., Milwaukee, Wis.
Studebaker, South Bend, Ind.; Detroit, Mich.
U. S. Rubber Co., Passaic, N. J.
Willys-Overland, Toledo, O.
Wisconsin Axle Co., Oshkosh, Wis.
Yellow Cab and Truck, Pontiac, Mich.

AVIATION

Allegheny County Airport Hangar, Pittsburgh, Pa.
Bendix Aviation Corp., South Bend, Ind.
Curtiss Aeroplane Co., Buffalo, N. Y.
Detroit Airport Hanger
Detroit Municipal Airport
Ford Hangars at Detroit, Cleveland, Chicago
Lawrence Fisher Hangar, Detroit
Pratt & Whitney Aircraft Co., East Hartford, Conn.
Shushan Airport, New Orleans, La.
Terminal Bldg., Birmingham, Ala., Airport
Wayne County Airport, Detroit, Mich.

BREWERIES AND DISTILLERIES

American Distilling Co., Pekin, Ill.
F. W. Cook Co., Evansville, Ind.
Gluek Brewing Co., Minneapolis, Minn.
Gunther Brewing Co., Baltimore, Md.
Jacob Ruppert Brew. Co., Poughkeepsie, N. Y.
Jacob Schmidt Brew Co., St. Paul, Minn.
A. Overholt & Co., Inc., Broad Ford, Pa.
Premier Pabst Corp., Milwaukee, Wis.
Schlitz Brewing Co., Milwaukee, Wis.
Theo. Hamm Brewing Co., St. Paul, Minn.
Victor Brewing Co., Jeanette, Pa.

CEMENT PLANTS

Alpha Portland Cement Co., 4 Plants
Ash Grove Lime and Cement Co., Louisville, Neb.
Dewey Portland Cement, Linwood, Ia.
Great Lakes Port. Cement Corp., Buffalo
Keystone Portland Cement Co., Bath, Pa.
Lehigh Portland Cement Co., 2 Plants
Lone Star Portland Cement Co., 2 Plants
Marquette Cement Mfg. Co., 2 Plants
Medusa Port. Cement, Wampum, Pa.; York, Pa.
North American Cement Corp., 3 Plants
Peerless Portland Cement Co., Detroit, Mich.
Penn Dixie Cement Co., Chattanooga
Sandusky Cement Co., Sylvania, O.
South Dakota Cement Plant, Rapid City, S. D.
Texas Portland Cement Co., Fort Worth, Houston
Universal Atlas Cement Co., 4 Plants
Wabash Portland Cement Co., Stroh, Ind.; Osborne, O.
West Penn Port. Cement Co., Butler, Pa.

CHEMICAL

Bakelite Corp., Bound Brook, N. J.
Dow Chemical Co., Midland, Mich.; Wilmington, N. C.
Dupont-De Nemours Co., Various Plants
General Aniline Works, Grasselli, N. J.
Grasselli Chem. Co., 3 Plants
Hercules Powder Co., Kenvil, N. J.; Hopewell, Va.
Isco Chemical Company, Niagara Falls, N. Y.
Krebs Pigment & Color Corp., Baltimore, Md.
Mathieson Alkali Wks., Niagara Falls, N. Y.
Maywood Chemical Company, Maywood, N. J.
Merrimac Chem. Co., Everett, Mass.
Michigan Alkali Co., Wyandotte, Mich.
Monsanto Chem. Co., E. St. Louis, Ill.
New England Alcohol Company, Everett, Mass.
Philadelphia Quartz Co., 4 Plants
Solvay Process Co., Baton Rouge, La.
Strahl & Pitsch, Babylon, N. Y.
Titanium Pigment Co., St. Louis, Mo.
U. S. Industrial Alcohol Co., Baltimore; Peoria; New Orleans
Viscose Co., Lewistown & Meadville, Pa.
West Vaco Chlorine Prod. Co., S. Charleston, W. Va.

MACHINERY AND FARM IMPLEMENTS

Advance-Rumley, La Porte, Ind.
Allis Chalmers Co., West Allis, Wis.; Springfield, Ill.
Caterpillar Tractor Co., Peoria, Ill.
Chain Belt Company, Milwaukee, Wis.
Dain Manufacturing Co., Ottumwa, Ia.
Deere & Co., Moline, Ill.; Waterloo, Ia.; Horicon, Wis.
Electro Motive Corp., McCook, Ill.
E. W. Bliss & Co., New York City
Fairbanks, Morse & Co., Beloit, Wis.
Ford Motor Tractor Works, Dearborn, Mich.
General Electric Co., 4 Plants
International Business Mach. Corp., Endicott, N. Y.
International Harvester Co., 4 Plants
Jeffery Mfg. Co., Columbus, O.
McIntosh & Seymour, Auburn, N. Y.
National Transit Pump & Mach. Co., Oil City, Pa.
Oliver Farm Equipment Company, 3 Plants
Symington Co., Rochester, N. Y.
Tuthill Pump Company, Chicago, Ill.
Western Electric Co., Chicago; Kearny, N. J.
Western Union Car Shops, Chattanooga, Tenn.
Westinghouse Elec. & Mfg. Co., Sharon, Pa.

FOOD AND PACKING PLANTS

American Maize Products Co., Roby, Ind.
Armour & Co., Chicago, Ill., 2 Plants
Best Foods Inc., Bayonne, N. J.
Campbell Soup Co., Chicago and Camden, N. J.
Christie-Brown & Co., Ltd., Winnipeg, Can.
Coca-Cola Co., Baltimore, Md.
Continental Baking Co., Kansas City, Mo.; Detroit
Corn Products Refining Company, 4 Plants
Cudahy Packing Company, Albany, Ga.
Darling & Co., E. St. Louis, Ill.
Dayton Biscuit Co., Dayton, O.
General Baking Co., Toledo, Ohio
Geo. A. Hormel Co., Austin, Minn.
John Morrell & Sons, Ottumwa, Ia.
Knox Gelatine Co., Camden, N. J.
Kohrs Packing Co., Davenport, Ia.
L. Newhof & Son, Albany, N. Y.
Morton Salt Co., Port Huron, Mich.
National Biscuit Co., Marseilles, Ill.; Los Angeles, Cal.
Oliver Relish Products, Newark, N. J.
Owosso Sugar Company, Owosso, Mich.
Puritan Dairy, Perth Amboy, N. J.
Quaker Oats Co., Cedar Rapids, Ia.
Rath Packing Co., Waterloo, Ia.
Schulze Baking Co., Chicago, Ill.
Swift & Co., Chicago; Hammond, Ind.; La Grange, Ga.
Union Stock Yards, Chicago, Ill.
Washburn, Crosby, Inc., Chicago, Ill.
White Provision Co., Atlanta
Wilson & Co., Chicago. Albert Lea, Minn.
Wrigley Co., Chicago, Ill.

FOUNDRIES AND FORGE SHOPS

Advance Pattern & Fdry. Co., Chicago, Ill.
American Brake Shoe & Fdry. Co., Erie, Pa.
American Cast Iron Pipe Co., Acipo, Ala.
American Forging & Socket Co., Pontiac, Mich.
American Smelting & Refining Co., Perth Amboy, N. J.
Baldwin Locomotive Wks., Eddystone, Pa.
Bohn Aluminum Corp., Detroit, Mich.
Century Electric Co., St. Louis, Mo.
James B. Clow & Son, Newcomerstown, O.
Columbia Radiator Co., McKeesport, Pa.
Dilts Mach. Works, Fulton, N. Y.
Erie Foundry Co., Erie, Pa.
Federated Metals Corp., St. Louis, Mo.; Detroit
A. Finkl & Son, Chicago
Foster Wheeler Corp., Dansville, N. Y.
Hardie-Tynes Mfg. Co., Birmingham
Monroe Steel Castings, Monroe, Mich.
New Departure Mfg. Co., Bristol, Conn.
Pressed Steel Car Co., McKees Rocks, Pa.
Rhode Island Mall. Iron Wks., Hillsgrove, R.I.
Simmons Co., Kenosha, Wis.
Somerville Iron Works, Somerville, N. J.
Williams White Co., Moline, Ill.
Woodward Iron Co., Woodward, Ala.

GARAGES

Bell Telephone Co., Reading, Pa.
Boston Elevated Co.
Burroughs Adding Machine Co., Detroit, Mich.
Commodore Apartment Garage, Louisville, Ky.
Commonwealth Edison Co., Chicago, Ill.
Concourse Garage, St. Louis, Mo.
Crawford Auto Shop, Birmingham
Dixon Motor Co., Altoona, Pa.
Hercules Motor Corp., Canton, O.
Heppenstall Forge & Knife Co., Pittsburgh
Mac-Whyte Co., Kenosha, Wis.
Marshall Field & Co., Evanston, Ill.
Meenam Coal Co., N. Y.
Milwaukee Elec. Ry. & Lt. Co., Milwaukee Delafield and Hales Corners, Wis.
Murphy Transfer & Storage Co., Minneapolis, Minn.
Todd & Orrison, Washington, D. C.
Wells-Fargo Co., Kansas City, Mo.
Wood Chevrolet Co., Birmingham

GYMNASIUMS AND SPORTS BUILDINGS

Alexander Gym., Lawrence College, Appleton, Wis.
Birmingham, Ala. Athletic Club Gym.
Cranbrook School, Bloomfield Hills, Mich.
Dexter Pavillion, Stock Yards, Chicago
Foch School Gym., Detroit, Mich.
Hillsdale College Gym., Hillsdale, Mich.
Holy Rosary Parish School Gym., Detroit, Mich.

SOME USERS OF FEDERAL PRECAST CONCRETE ROOF SLABS

Loyola University Gym., Chicago, Ill.
Michigan State Fair Coliseum, Detroit, Mich.
New Trier High School Gym., Kenilworth, Ill.
Univ. of Chicago Sunny Gym.
U. of Michigan Yost Field House, Ann Arbor
U. of Michigan Intra-Mural Sports Bldg., Ann Arbor
University of Texas Sports Bldg., Austin, Tex.

INSTITUTIONS

Georgia State Prison, Tattnall Co., Ga.
Illinois State Reformatory, Pontiac, Dwight, Ill.
Ind. Soldiers & Sailors Orphans Home, Knightstown
Institution for Feeble Minded, Columbus, Ohio
Kings County Hospital, Brooklyn
Lawrence Hospital, New London, Ohio
Mayview Hospital, Mayview, Pa.
New York State; Ossining, Orangeburg, Rome, Willard, Dannemora, Helmuth, Amenia
St. Francis Hospital, Grand Island, Nebr.
State Hospital, Clinton, N. J.
State Hospital, Moose Lake, Minn.
State Prison, Montgomery, Ala.
Tuberculosis Hospital, Evansville, Ind.

OIL COMPANIES

American Oil Company, Baltimore, Md.
Atlantic Refining Co., Exton and Mt. Union, Pa.; Rochester, N. Y.
Barnsdall Oil & Refining Co., Barnsdall, Okla.
Colonial Beacon Oil Co., New York City.
Emblem Oil Co., Warren, Pa.
Empire Oil & Refining Co., Ponca City, Okla.
Galena Signal Oil Co., Galena, Tex.
Gulf Refining Co., 2 Plants
Indian Refining Co., Lawrenceville, Ill.
Keystone Pipe Line Co., Various Locations in Penna.
Mid Continent Petroleum Co., Tulsa
Penzoil Co., Rouseville, Pa.
Pierce Oil Co., Sand Spring, Okla.
Pure Oil Co., Heath, Ohio
Shell Petroleum Corp., East Chicago, Ind.
Sinclair Refining Co., 6 Plants
Standard Oil Co., 4 Plants
Texas Co., Port Arthur; Newark, N. J.; Claymont, Del.
Vacuum Oil Co., Paulsboro, N. J.

PAPER MILLS AND PRODUCTS

Champion Fibre, Canton, N. C.
Chicago Carton Co., Chicago, Ill.
Consolidated Paper Co., Monroe, Mich.
Consolidated Water Pr. & Paper Co., Wis. Rapids
Container Corp. of America, Chicago, Ill.
Crown-Williamette Paper Co., Camas, Wash.
Downington Paper Co., Downington, Pa.
Fox River Paper Co., Appleton, Wis.
Harriman Co., Harriman, Tenn.
Hinsdale Paper Company, Hinsdale, N. H.
International Paper Co., Herkimer, N. Y.
John H. Heald Co., Lynchburg, Va.
Kieckhefer Container Co., Delair, N. J.; Plymouth, N. C.
Kimberly-Clark Co., Kimberly, Wis.; Niagara, Wis.
Marathon Paper Mills, Kimberly, Wis.; Ashland, Wis.
Mead Corporation, Chillicothe, Ohio; Kingsport, Tenn.
Morris Paper Mills, Morris, Ill.
Munising Paper Co., Munising, Mich.
New Haven, Conn., Pulp Board Co.
National Paper Prod. Co., Port Townsend, Wash.
Nekoosa Edwards Paper Co., Port Edwards, Wis.
Northern Paper Mills, Green Bay, Wis.
Ravenswood Paper Co., Long Island, N. Y.
Rhinelander Paper Co., Rhinelander, Wis.
Riverside Paper Mills, Appleton, Wis.
Scott Paper Co., Chester, Pa.
Sonoco Prod. Co., Hartsville, S. C.
Thilmany Pulp & Paper, Kaukauna, Wis.
Union Bag & Paper Company, Savannah, Ga.
Waldorf Paper Prod. Co., St. Paul, Minn.
Warren Mfg. Co., Warren Glenn, N. J.

PUBLIC BUILDINGS

Adler Planetarium, Chicago, Ill.
Armory for Illinois Naval Reserves, Chicago
Art Institute of Chicago, Chicago, Ill.
Bath House, Pekin, Ill.
Bureau County Court House, Princeton, Ill.
Field Artillery Armory, Jamaica, L.I., N. Y.
Ford Museum (Floor Slabs), Dearborn, Mich.
Haish Memorial Library, De Kalb, Ill.
Historical Society of Western Pa., Pittsburgh
Industrial Mutual Ass'n Auditorium, Flint, Mich.
Light Horse Squadron Armory, Milwaukee, Wis.
Memorial Auditorium, Wellington, Kansas
Michigan State Fair Buildings, Detroit, Mich.
Minnesota State Fair Buildings, St. Paul, Minn.
Municipal Auditorium, Shreveport, La.
National Guard Armory, Birmingham, Ala.
Naval Armory, Indianapolis, Ind. and Chicago, Ill.
North Birmingham, Ala. Public Library
Park Auditorium, Hammond, Ind.
Raleigh, N. C. Auditorium
Regimental Armory, 124th Field Art., I.N.G., Chicago, Ill.
Rhode Island Auditorium, Providence
Shedd Aquarium, Chicago, Ill.
St. Louis Municipal Auditorium
Wigmore Coliseum, Cleveland, Ohio
Zoological Gardens, Riverside, Chicago, Ill.

PUBLIC UTILITIES

Allegheny County Steam Heating Co., Pittsburgh, Pa.
American Telephone & Telegraph Co., Chicago, Ill.
Appalachian Power Co., Logan, W. Va.
Astoria Lt. Heat & Pr. Co., Astoria, New York
Birmingham Elect. Co.
Boston Consolidated Gas Co.
Brooklyn Edison Elect. Illum. Co.
Brooklyn Union Gas Co., Greenpoint
Central Illinois Public Service Co., Springfield
Chicago District Elec. Gen. Co., Hammond, Ind.
Cleveland Street Car System, Cleveland, O.
Commonwealth Edison Co., Chicago, Ill.
Consolidated Gas Co., N. Y.
Consumers Power Co., Flint, Mich.
Dakota Power Co., Rapid City, S. D.
Delaware Pwr. & Lt. Co., Wilmington, Del.
Detroit Edison Co., Detroit, Mich.
Duquesne Light Co., Pittsburgh
Duke Power Co., Great Falls, S. C.; Charlotte, N. C.
Edison Co., Cumberland, Md.
El Paso, Fla. Electric Co.
Georgia Power Co., Atlanta, Bremer, Ga.
Indiana Service Co., Ft. Wayne and Indianapolis, Ind.
Kentucky Util. Co., Madisonville, Ky.
La Clede Gas Light Co., St. Louis, Mo.
Louisiana Steam Prod. Co., Baton Rouge, La.
Louisville Gas & Electric Co., Louisville, Ky.
Niagara-Hudson Power Corp., Buffalo, N. Y.
Northern States Power Co., Chippewa Falls, Wis.
Oklahoma Gas & Elec. Co., Harrah, Okla. City
Pawtucket R. I. Gas Co.
Philadelphia Rapid Transit Co.
Potomac Electric Co., Washington, D. C.
Public Service Co., of Indiana, Edwardsport, Ind.
Southern Power Co., Salisbury, N. C.
Stone & Webster, Boston
St. Paul Gas Light Co., St. Paul, Minn.
Texas Utilities, Lubbock, Tex.
Tri-State Telephone & Telegraph Co., St. Paul, Minn.
United Illuminating Co., New Haven, Conn.
West Penn Power Co., Pittsburgh

RAILROADS AND RAILROAD EQUIPMENT

American Car & Foundry Co., Chicago, Ill.
American Locomotive Co., Schenectady, N. Y.
Baltimore & Ohio, various cities
Bettendorft Co., Bettendorf, Ia.
Central RR of N. J., Boundbrook, N. J.
Chesapeake & Ohio, Russell, Ky, Huntington, W. Va.
Chicago, Burlington & Quincy, various cities
Chicago & East. Illinois, Chicago; Evansville, Ind.
Chicago and Great Western, Oelwein, Ia.
Chicago, Milwaukee & St. Paul, Milwaukee, Wis.
Chicago & North Western, Chicago
Chicago & Western Indiana, Chicago
Chicago, Rock Island & Pacific, various cities
Chicago Union Station, Chicago
Commonwealth Steel Co., Granite City, Ill.
Dallas Union Station, Dallas, Tex.
Delaware & Hudson, Oneonta, N. Y.
Delaware, Lack. & West., Buffalo, Hoboken
Florida East Coast, Jacksonville, St. Augustine
Fort Worth and Denver City R.R., Childress, Tex.
General American Transportation Corp., East Chicago, Ind.
Grand Trunk, Detroit, Mich.; Eldson, Ill.
Griffin Wheel Co., Council Bluffs, Ia.
Illinois Central, various cities
Indianapolis Union Station, Indianapolis, Ind.
Kansas City Union Station, Kansas City, Mo.
La Salle Street Station, Chicago, Ill.
Lehigh Valley R.R., Jersey City, N. J.
Locomotive Finished Materials Co., Atchison, Kans.
Louisville & Nashville, Louisville, Ky., Birmingham
Michigan Central R.R., Detroit, Mich.
Mount Vernon Car Mfg. Co., Mount Vernon, Ill.
Missouri, Kansas & Texas, Waco and Ft. Worth, Tex.
Missouri Pacific, Sedalia, Mo.
N. C. & St. L. Railroad, Atlanta, Ga. Union Station
New York Central Station, Buffalo
Norfolk & Western, Roanoke, Va.
N. Y., N. H. & Hartford, Harrison; Mamaroneck
Pennsylvania Lines, various cities
Pullman Company, Chicago, Ill.
Ryan Car Co., Chicago, Ill.
Southern Ry. Co., various cities
Superheater Co., East Chicago, Ind.
Terminal Station, Atlanta, Ga.
Union Pacific, Omaha, Nebr.
Wabash Railroad, Chicago; Decatur, Ill.
Western Steel Car & Foundry Co., Chicago, Ill.

SCHOOLS AND UNIVERSITIES

Alabama Polytechnic Institute
Brooklyn College, Brooklyn, N. Y.
College of St. John, St. Paul, Minn.
Eastern Illinois State Teachers College
Georgia Tech, Atlanta, Ga.
Harvard University Chapel
Holy Cross College, Worchester, Mass.

SOME USERS OF FEDERAL PRECAST CONCRETE ROOF SLABS

Louisiana State University, Baton Rouge, La.
MacMurray College, Jacksonville, Ill.
Purdue University, Lafayette, Ind.
Rollins College Theatre, Winter Park, Fla.
St. John's Prep. School, Danvers, Mass.
St. John's Seminary, Brighton, Mass.
St. Leo's Parochial School, Corona, L. I.
St. Louis Univ. Dental School, St. Louis, Mo.
State School, Fort Wayne, Ind.
University of Chicago Buildings, Chicago
University of Detroit, Detroit, Mich.
University of Indiana, Bloomington, Ind.
University of Michigan, Ann Arbor, Mich.
University of Minnesota, Minneapolis, Minn.
Wilberforce, Ohio, University
Yale University Gymnasium, etc.
Grade and High Schools at:
Birmingham, Ala.
Buffalo, N. Y.
Chicago, Ill.
Dixon, Ill.
Glencoe, Ill.
Peoria, Ill.
Windsor, Ill.
Evansville, Ind.
Hammond, Ind.
Indianapolis, Ind.
Kansas City, Kans.
Mishawaka, Ind.
Royal Oak, Mich.
Minneapolis, Minn.
St. Paul, Minn.
Marathon, N. Y.
Lebanon, Pa.
Pittsburgh, Pa.
Nashville, Tenn.
Syracuse, N. Y.

STEEL PLANTS AND METAL INDUSTRIES

Alabama Dry Dock & Shipbuilding Co., Mobile
Algoma Steel Co., Slt. St. Marie, Ont., Can.
American Brass Company, Detroit, Mich.; Waterbury, Conn.
Aluminum Products Co., La Grange, Ill.
American Steel & Wire Co., 2 Plants
Benton Harbor Malleable Foundry Co., Benton Harbor, Mich.
Bethlehem Steel Co., Buffalo, N. Y.
Bridgeport Brass Company, Bridgeport, Conn.
Carnegie Steel Co., Several Plants
Central Steel & Wire Company, Chicago, Ill.
Chase Brass & Copper Company, Waterville, Conn.
Detroit Steel Products Co., Detroit, Mich.
Dravo Contracting Co., Pittsburgh, Pa.
Gary Tube Co., Gary, Ind.
General Steel Castings Corp., Eddystone, Pa.
Glancy Malleable Corp., Waukesha, Wis.
Globe Steel Tubes Co., Milwaukee, Wis.
Gulf States Steel Co., Birmingham & Alabama City
Homestake Mining Co., Lead, S. Dak.
Illinois Steel Co., Gary, Ind.; So. Chicago, Ill.
Inland Steel Co., Chicago Hts., Indiana Harbor
Massillon Rolling Mills, Massillon, O.
Metals Refining Co., Hammond, Ind.
Metropolitan Iron Foundry, New York City
Minnesota Steel Co., Duluth, Minn.
National Tube Co., Elwood City, Pa.; Lorraine, O.
Northwestern Barb Wire Co., Sterling, Ill.
Phelps Dodge Copper Products Co., Bayway, N. J.
Railway Steel Springs Co., Chicago Hts., Ill.
Revere Copper & Brass Co., New Bedford, Mass.
Sloss-Sheffield Steel & Iron Co., N. Birmingham, Ala.
Steel & Tubes, Inc., Elyria, O.
Tennessee Coal Iron & R.R. Co., Birmingham
U. S. Steel Corp., throughout the country
Worth Steel Co., Claymont, Del.
Youngstown Sheet & Tube Co., 2 Plants

THEATRES

Carolina, Greensboro, N.C.
Cherokee, St. Paul, Minn.
Colonial, Milwaukee, Wis.
Granada, Duluth, Minn.
Keith's Georgian, Atlanta
Lerner, Elkhart, Ind.
Loew's Inc., Pittsburgh
Melba, Dallas, Tex.
Metropolitan, Denver
Michigan, St. Louis, Mo.
Olympia, Miami, Fla.
Orpheum, Sioux City, Ia.
Palace, Chicago, Ill.
Paramount, Bristol, Tenn.
Paramount, Brooklyn, N.Y.
Paramount, Lynchburg, Va.
Paramount, Montgomery, Ala.
Paramount, Newport News, Va.
Seattle, Seattle, Wash.
Shea's, Buffalo, N. Y.
Shubert-Lafayette, Detroit
Tampa Theatre, Tampa, Fla.
Ward, New York, N. Y.
World, Omaha, Nebr.

U. S. GOVERNMENT BUILDINGS

Hospital for Defective Delinquents, Springfield, Mo.
Immigration Station, Galveston, Tex.
Marine Hospital, Stapleton, L. I., N. Y.
Naval Training Station, Great Lakes, Ill.
Sault Ste. Marie, Mich. Warehouse
Veterans Administration Hospital, Perry Point, Md.
U. S. Government Printing Annex, Washington, D. C.
U. S. Military Academy, West Point, N. Y.
U. S. Naval Air Station, Norfolk, Va.
U. S. Naval Air Station, Pensacola, Fla.
U. S. POST OFFICES AT:
Montgomery, Ala.
Atlanta, Ga.
Peoria, Ill.
Chicago, Ill.
Sanford, Me.
Detroit, Mich.
Greensboro, N. C.
La Crosse, Wis.

WATER, SEWAGE AND INCINERATOR PLANTS

Annapolis, Md.
Barrington, Ill.
Bar Harbor, Me.
Bessemer, Ala.
Beverly Hills, Cal.
Birmingham, Ala.
Chattanooga, Tenn.
Chicago, Ill.
Columbus, Ga.
Dallas, Tex.
Dalton, Ga.
Des Moines, Ia.
Detroit, Mich.
Duluth, Minn.
Enid, Okla.
Follansbee, W. Va.
Fort Lauderdale, Fla.
Greensville, S. C.
Hammond, Ind.
Indianapolis, Ind.
Jackson, Miss.
Jacksonville, Fla.
Jonesboro, Ill.
Kaukauna, Wis.
Louisville, Ky.
Memphis, Tenn.
Milwaukee, Wis.
Minneapolis, Minn.
New Bedford, Mass.
New Brunswick, N. J
New York, N. Y.
Norfolk, Va.
Omaha, Nebr.
Pontiac, Mich.
Poughkeepsie, N. Y.
Racine, Wis.
Raleigh, N. C.
Rockville, Conn.
Saginaw, Mich.
St. Louis, Mo.
Syracuse, N. Y.
St. Paul, Minn.
Springfield, Mo.
Toledo, O.

OTHER INDUSTRIALS

A. B. Dick Company, Chicago, Ill.
American Tobacco Co., Reidsville, N. C.
A. P. Green Firebrick Co., Mexico, Mo.
Behr Manning Corp., Watervliet, N. Y.
Bristol-Meyers Co., Hillside, N. J.
Central Fibre Products Co., Vincennes, Ind.
Capstan Glass Co., Connellsville, Pa.
J. L. Clark Mfg. Co., Rockford, Ill.
Colgate-Palmolive-Peet Corp., Jersey City
Columbia Mills, Minetto, N. Y.
Congoleum-Nairn Co., Kearny, N. J.
Continental Can Co., Chicago
Corning Glass Wks., Corning, N. Y.
Crown Cork & Seal Co., Baltimore, Md.
Eagle-Picher Lead Co., Hillsboro, Ill.
E. B. Lanman Company, East Chicago, Ind.
Federal Mills, Lockport, N. Y.
Flintkote Co., E. Rutherford, N. J., Chicago Hts., Ill.
Henry Clay & Bock Co., Ltd., Trenton, N. J.
Kessler Mfg. Co., New York City
Kohler Co., Kohler, Wis.
Lebanon Mills, Lebanon, Pa.
Lever Bros., Hammond, Ind.
Libbey-Owens-Ford Glass Co., Rosford, O., Ottawa, Ill.
Montgomery Ward & Co., various locations
M. W. Kellogg Co., Jersey City, N. J.
National Carbon Company, Niagara Falls, Fostoria, O.
Owens-Illinois Glass Co., Huntington, W. Va.
Otis Elevator Co., Quincy, Ill.; Harrison, N. J.
Pangborn Corp., Hagerstown, Md.
Pennsylvania Greyhound Lines, Washington, D. C.
Piehl Starch Works, Indianapolis, Ind.
Ruberoid Co., Bound Brook, N. J.
Sears, Roebuck & Co., Memphis, Minneapolis, Newark
Standard Sanitary Mfg. Co., Kokomo, Ind.
Star Publishing Company, St. Louis, Mo.
Tubize Chatillon Corp., Rome, Ga.
Upjohn Company, Kalamazoo, Mich.
Wilson and Bennett, Clearing, Ill.
Zenith Radio Corporation, Chicago, Ill.

Cubs Baseball Park, Chicago, showing Federal Precast Concrete Grand Stand Slabs. Other similar installations include the Houston Texas Baseball Park; Michigan State Fair Grounds, Detroit; Atlanta, Ga. Baseball Park; Washington Park Race Track, Chicago; Missouri Valley College Stadium, Marshall, Mo.; Woodlawn High School Stadium, Birmingham, Ala.; Coliseum, Chicago.

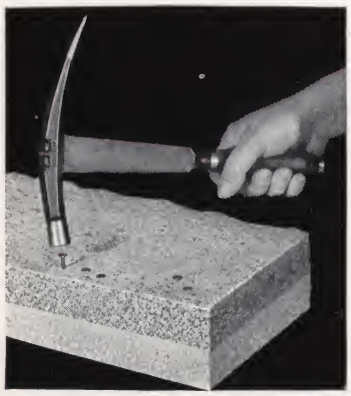
Chicago Rapid Transit Line, Merchandise Mart "L" Station. The platforms on both sides are *Featherweight* Concrete Slabs covered with asphalt plank. The risers and treads of the five stairways are also Federal Slabs, the treads having top surface of carborundum to prevent slipping. The connecting passageway to the Merchandise Mart is similarly floored with these slabs.

Ford Museum Building, Dearborn, Mich., showing floor of *Featherweight* Concrete Precast Slabs ready to be covered over with a mastic surface. This building has over 300,000 sq. ft. of floor space.

Slabs are also furnished for conveyer floors. On inclined surfaces, treads are provided.

Featherweight NAILING CONCRETE *Insulating Roof Slabs*

SLATE, ORNAMENTAL TILE, COPPER OR OTHER COVERING NAILED DIRECTLY TO CONCRETE!



Nailing Directly Into Concrete!

● The merits of precast concrete have been so firmly established during the past thirty years that today there is no question of its position as the leading roof-deck material. The addition of an integral *Nailing Concrete* surface to these slabs has been accepted by architects, engineers, and builders as an equally important advance in construction practice.

With the ability to take and firmly hold nails, the concrete deck may be covered directly with slate, ornamental tile, copper or other covering. There are no wood nailing strips to rot out. The covering cannot work loose; the original beauty of the roof is always preserved. This construction is permanent, fireproof and free from all maintenance expense—painting, repairing or replacement.

Nail Pull Test

The slabs are of standard Federal design, with bottom section of reinforced concrete and top section of nailing concrete cast integrally with the bottom. This nailing material is of our own special formula developed by years of research and proven worthy in service. In actual nail pull test, it fully meets the requirements of the most rigid specifications.

The concrete is of Haydite aggregate (trapped air cells) giving both light weight and an insulating value unique in concrete. Being factory-made and laid directly on the steel roof purlins, *Nailing* Slabs are speedily erected in any weather and are ready at once for the roofing felt and ornamental covering. Note the partial list of users on next page.

Winnetka Congregational Church, Winnetka, Illinois, with roof-deck of *Featherweight* Nailing Concrete Slabs to which ornamental covering has been directly nailed. Archt. Aymar Embury and J. L. Hamilton; Contr. Dahl, Stedman Co.

All types of Federal Roof Slabs may be furnished with a layer of cork inserted in the body of the slab where super-insulation is required. For a combination of acoustical treatment and super-insulation, the layer of cork or other material may be furnished on the underside of the slab. The concrete is cast integrally with the cork, forming a complete factory-made unit. *(See page 7.)*

Our engineers are glad to provide suggestions for the most economical layout of both structural steel and slabs, along with sketches and estimates. There is no obligation.

For Specifications, See Page 32.

Featherweight Nailing Concrete Flat Slab—the finished product ready to be laid directly on the steel purlins.

SOME OF THE MANY MODERN BUILDINGS ON WHICH *Featherweight* NAILING CONCRETE SLABS ARE USED . .

Algoma Steel Company, Sault St. Marie, Canada
Allegheny County Home, Woodville, Pa.
Bellevue Hospital, New York, N. Y.
Birmingham, Alabama Municipal Airport Terminal Building
Brooklyn College, Brooklyn, N. Y.
Brown's Funeral Home, Birmingham, Ala.
Chicago Zoological Society, Brookfield, Ill.
Citizens and Southern Bank Building, Atlanta, Ga.
City of St. Louis, Missouri, Biddle Market
Cranbrook School, Bloomfield Hills, Mich.
Daytona Beach Florida City Water Softening Plant
Fernald State School, Belmont, Mass.
First National Bank, Lake Forest, Ill.
First National Building Corporation, Oklahoma City, Okla.
Foch School, Detroit, Mich.
Garden City, Long Island, N. Y., Incinerator
Georgetown Preparatory School, Garrett Park, Md.
Glenn Dale Tuberculosis Sanatoria, Glenn Dale, Md.
Glenwood Manual Training School, Glenwood, Ill.
Grosse Point, Mich., Pumping Station
4-H Club Building Union Stock Yards, Chicago, Ill.
Haish Memorial Library, DeKalb, Ill.
Harrison School, Cedar Rapids, Ia.
Harvard University, Russell Hall, Cambridge, Mass.
Immaculate Heart of Mary R. C. Church, Brooklyn, N. Y.
International Business Machines Company, Endicott, N. Y.
Jackson County, Michigan Sanitarium
John Marshall High School, Chicago, Ill.
Kanawha Valley Power Company, Handley and Marmet, W. Va.
Kingsport Utilities, Kingport, Tenn.
Lake Forest, Illinois Library
Lakewood Pumping Station, Duluth, Minn.
Lane Technical High School, Chicago, Ill.
Lincoln National Bank, Fort Wayne, Ind.
Little Sisters of the Poor (Home for aged.) Pittsburgh, Pa.
Meadville Theological Seminary, Chicago, Ill.
Medfield State Hospital, Medfield, Mass.
Methodist Deaconess Orphanage, Lake Bluff, Ill.
Metropolitan Sewage Commission, Annapolis, Md.
Memorial Auditorium, Raleigh, N. C.
Minneapolis Water Works
Minnesota State Office Building, St. Paul, Minn.
Montgomery Ward and Company, Several Locations
Mount Pleasant, Michigan Elementary School
Mundelein College, Chicago, Ill.
National Historical Park, Morristown, N. J.
National Kindergarten, Wilmette, Ill.
New England Telephone and Telegraph Company, Cambridge, Mass.
North Side School, Joliet, Ill.
Northway Apartment Building, Baltimore, Md.
Norwich Free Academy, Norwich, Conn.
Our Lady of Guadalupe Church, Brooklyn, N. Y.
Our Lady of Refuge Church, Brooklyn, N. Y.
Passaic Herald News, Passaic, N. J.
Polk State School, Polk, Pa.
Presbyterian Theological Seminary, Chicago, Ill.
Purdue University, Lafayette, Ind.
Queensboro Public Library, Woodside, Long Island, N. Y.
Roger Sullivan High School, Chicago, Ill.
St. Aloysius Church, Detroit, Mich.
St. Roberts Congregation Church, Milwaukee, Wis.
St. John Cathedral, Milwaukee, Wis.
St. John's Seminary, Brighton, Mass. (Philosophy House)
St. Sabina Church, Chicago, Ill.
St. Pascals Catholic Church, Chicago, Ill.
Seaside Sanitorium, Waterbury, Conn.
Shedd Aquarium, Chicago, Ill.
Sheboygan Wisconsin Water Works
Shelby County Hospital, Memphis, Tenn.
Soulard Market, St. Louis, Mo.
Spring Grove State Hospital, Cantonsville, Md.
State Normal School, Fayetteville, N. C.
South Elementary School, Glencoe, Ill.
State Hospital, Raleigh, N. C.
State School Dormitory, Wrentham, Mass.
Stonewall Jackson Training School, Concord, N. C.
U. S. Appraisers Store, Baltimore, Md.
U. S. Government Marine Hospital, Stapleton, Staten Island, N. Y.
U. S. Immigration Station, Galveston, Tex.
University of Alabama (Dining Hall and Kitchen), Tuscaloosa, Ala.
University of Chicago, Oriental Building, International House
University of Pittsburgh, Heinz Memorial Chapel
Veterans Administration Facility, Danville, Ill.
W. G. N. Broadcasting Studio, Chicago, Ill.
Washington Cathedral, North Transept, Washington, D. C.
Westminster Presbyterian Church, Minneapolis, Minn.
Willard State Hospital, Willard, N. Y.
Yale University, Ray Tompkins House, New Haven, Conn.

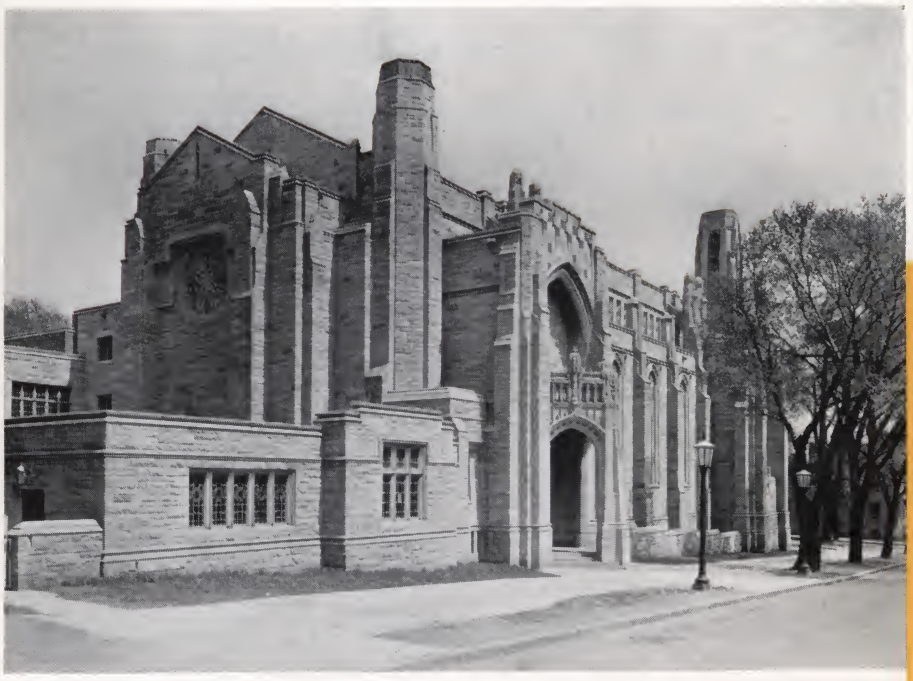
Norwich Free Academy, Norwich, Conn. Chandler and Palmer, Boston, Archt.; Pieretti Bros., Centerbrook, Conn., Contr. A large area of *Featherweight* Nailing Concrete Slabs to which an ornamental roof is securely nailed.

Morristown, N.J. National Historical Museum with ornamental roof firmly nailed directly to *Featherweight* Nailing Concrete Slabs. Archt. John Russell Pope; Contr. Andrew Christenson, Elizabeth, N. J.

New England Tel. & Tel. Co., Cambridge, Mass. Densmore, McClear and Robbins, Archts-Engrs.; Leslie R. Porter Co., Contrs. *Featherweight* Nailing Concrete Slabs covered with ornamental tile.

St. Sabina's Church, Chicago with permanent, fireproof roof-deck of *Featherweight* Nailing Concrete Slabs. Archt. Jos. W. McCarthy; Contr. Math Rauen Company.

Brooklyn College, Science Hall, Brooklyn, New York, an outstanding campus project with roof-deck of *Featherweight* Nailing Concrete Slabs with ornamental roof nailed over. Archt. Randolph & Evans; Contr. Thomas J. Waters & Son.



Trinity Methodist Episcopal Church, Albany, New York, a beautiful, modern and permanent structure roofed with enduring, firesafe *Featherweight* Nailing Concrete Slabs. Archt. Sundt & Wenner; Contr. W. E. Wark Co., Inc., Phila.

University of Chicago, Oriental Building, typical of several beautiful buildings on this campus with roof-deck of *Featherweight* Nailing Concrete Slabs under the ornamental tile. Archt. Mayers, Murray & Phillips & Emery B. Jackson; Contr. Frank H. Stowell Co.

Law School, Baton Rouge, La., another example of modern, permanent construction with a modern, permanent roof-deck of *Featherweight* Nailing Concrete Slabs covered with an ornamental roof. Archt. Weiss, Dreyfous & Seiferth; Contr. Caldwell Bros. & Hart, New Orleans, La.

MODERN, IMPROVED *Featherweight* CONCRETE INTERLOCKING ROOF SLABS AND GLASS INSERT SLABS

A complete roof requiring no composition or other covering --- light in weight and with insulating value.

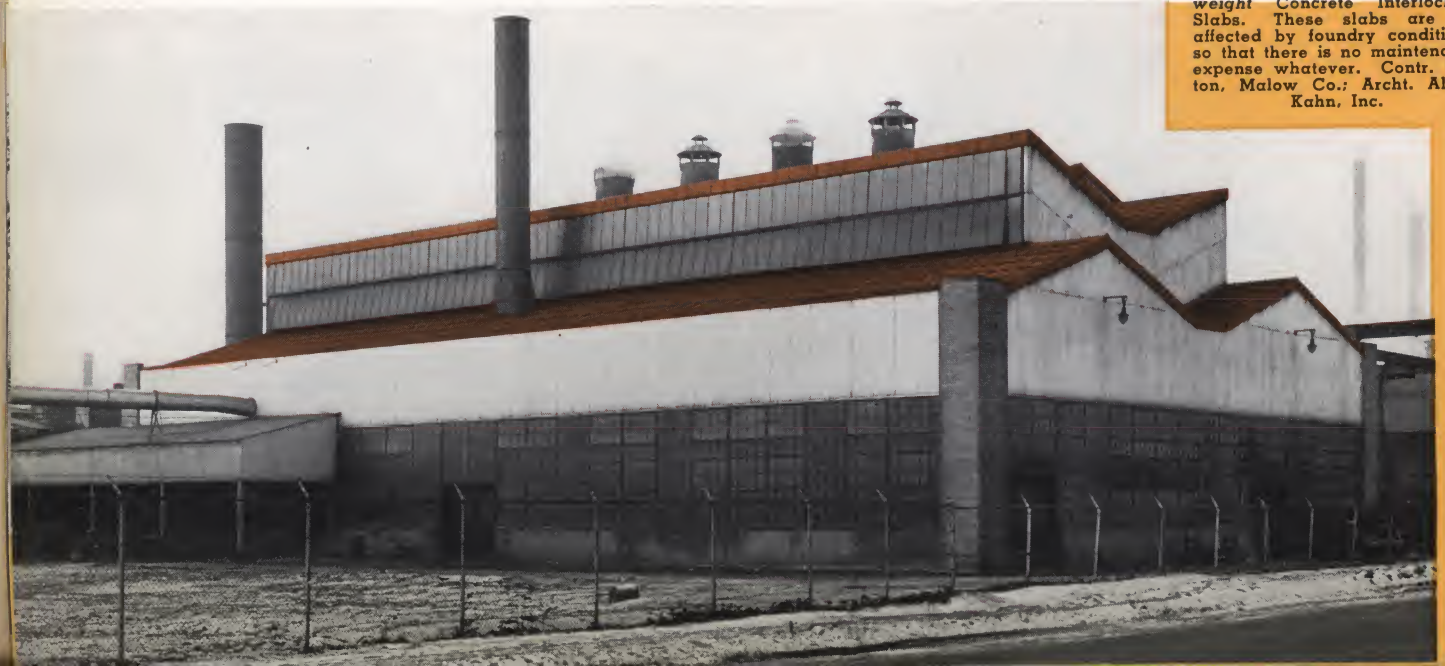
● The obvious economy and attractive appearance of this type of precast concrete roof has brought about the use of millions of square feet of Federal Interlocking Slabs for industrial, railroad and public buildings of every nature.

Made of *Haydite aggregate* (trapped air cells)—the slabs are light in weight and have an insulating value unique in concrete. The resulting savings in structural steel and in maintenance expense, added to the saving by eliminating weatherproof covering, make this *the lowest cost permanent roof obtainable today.*

These slabs hook over the steel channel purlins, overlap and interlock, and are hermetically sealed with plastic cement on all four sides. This unit system compensates for the forces of expansion, contraction and vibration. No composition or other covering is required.

The permanent red color in the body and surface of these slabs makes the entire building stand out prominently and enhances its value accordingly. The underside presents an attractive, smooth, gray finish that needs no painting.

Modern Foundry of the Packard Motor Car Company, Detroit, Michigan covered with *Featherweight* Concrete Interlocking Slabs. These slabs are not affected by foundry conditions, so that there is no maintenance expense whatever. Contr. Barton, Malow Co.; Archt. Albert Kahn, Inc.



AN ENDURING, ATTRACTIVE ROOF REQUIRING NO COMPOSITION COVERING

Light Weight—Fireproof—No Maintenance

● *Featherweight* Interlocking Slabs are manufactured in our own extensive daylight plants under the most favorable conditions of temperature and moisture, held under strict control.

Steel Reinforcing Correctly Placed

The scientifically proportioned mix is cast in steel molds and mechanically vibrated to produce a dense, strong concrete. The slab is reinforced with galvanized wire mesh, mechanically placed at its most advantageous position in the concrete.

The result of such precise design and manufacture is *concrete at its best*—dense, impervious, unusually light weight with maximum strength. These factors at once produce a definite economy in the steel used for the superstructure of any building. Each standard slab is 52 inches long by 24 inches wide and $1\frac{1}{8}$ inches thick, covering an exposed area of 4 feet by 2 feet. Special lengths from 24 inches to 64 inches can be furnished when necessary.

The advantages of these precast concrete slabs are today universally recognized. They are permanent, proof against fire, smoke, water, steam, rust, cinders, heat, cold, fumes and gases. Once in place, they last as long as the rest of the building, requiring no maintenance expense for painting, repairs or replacement.

Quickly Laid Directly on Purlins

Since the slabs are manufactured while the structural steel is being fabricated, no time is lost in completing the building for earliest possible occupancy. The slabs are handled direct from box-cars to roof, all erection being done either by our own skilled national organization or under its supervision. A Federal roof goes on easily at any season, in summer heat as well as at zero weather.

Our engineering department, expert in roof design, will gladly submit recommendations for the most economical layout of both roof purlins and slabs. There is no obligation, whatever.

Universal Portland Cement Company, Buffington, Indiana Machine Shop with roof of Federal Interlocking Slabs. This roof has been in service for many years.

Manufacturers Junction Railway Company, Chicago, Freight House covered with Federal Interlocking and Glass Insert Slabs. Plans by Western Electric Company. Contr. Sumner Sollitt Co.

Featherweight GLASS INSERT SLABS FOR DAY-LIGHTING

Interchange With *Featherweight* Interlocking Slabs

● Top-lighting is the modern method of capitalizing daylight in buildings of all kinds—factories, railroad stations, auditoriums, gymnasiums and many others. It eliminates all shadows, and lights up the entire floor space. For this purpose, we manufacture a Glass Insert Slab, shown on page 28, consisting of a 21 by 35 inch pane of strong 1/4 inch wire glass, imbedded in the concrete during manufacture. This construction is fully weather-tight and eliminates the use of puttied joints and metal frames. A thick asphalt cushion between the glass and the concrete permits free expansion or contraction. Each slab has its own condensation gutter.

Glass Insert Slabs are of the Interlocking type and being of the same dimensions, are used interchangeably with the regular slabs, allowing any desired amount of daylighting. No special framing of any kind is required. Each slab contains 5 square feet of glass.

For Specifications, See Page 32.

Federal Cork Insulated Interlocking and Glass Insert Slabs over a swimming pool.

Georgia State Prison, Tattnall County, Ga. Tucker and Howell, Atlanta, Archts.; Struck Const. Co., Louisville, Ky., Contr. Over 60,000 sq. ft. of *Featherweight* Interlocking Slabs and Glass Insert Slabs of natural cement color.

Ford Motor Company of Canada Limited, Ford, Ontario, Canada, covered with Federal Interlocking Slabs. This is but one of the many Ford plants in Canada and all sections of the United States, protected with several million square feet of Federal Roofs. Archt. Albert Kahn, Inc.; Contr. Wells & Gray, Limited.

St. Louis Municipal Auditorium, St. Louis, Mo. Plaza Commission, Inc., Engrs. Archts.; Boaz Kiel Construction Co., Contr. Approximately 100,000 sq. ft. of *Featherweight* Cork-Back and Interlocking Slabs.

SOME OF THE USERS OF FEDERAL INTERLOCKING SLABS

Algoma District Power Company, Wa Wa, Ontario, Canada
Alpha Portland Cement Company, La Salle, Ill., Alsen, N. Y.
American Nut and Bolt Fastener Company, Pittsburgh, Pa.
American Steel Foundries, Granite City, Ill., Indiana Harbor, & Hammond, Ind., Alliance, O., Verona, Pa.
Atlanta and West Point RR Company, Atlanta, Ga.
Attica State Prison, Attica, N. Y.
Barnsdall Oil Company, Tulsa, Okla.
E. A. Baumbach Company, Chicago, Ill.
Borough of Tarentum, Pa., Water and Light Plant
Jules Breuchaud Garage, Long Island City, N. Y.
Budd Wheel Company, Detroit, Mich.
C. B. & Q. RR. Company, Aurora, Ill.
California Water Company, Brownsville, Pa.
A. M. Castle Company, Chicago, Ill.
Central Illinois Public Service Company, Canton, Ill.
Consolidated Gas Company, Hunts Point, N.Y.
Corn Products Refining Company, Pekin, Ill.
Crane Company, Chicago, Ill.
Crown Cork and Seal Company, Baltimore, Md.
Detroit City Gas Company, River Rouge, Mich.
Ford Motor Comapny, throughout the country.
General American Transportation Company, East Chicago, Ind.
General Electric Company, West Lynn, Mass.; Harrison, N. J.
General Steel Castings Company, Eddystone, Pa.
Illinois Steel Company, Gary, Ind.
Incinerators at:
- Fort Wayne, Ind.
- Charlottesville, Va.
- San Angelo, Tex.
- Red Bank, N. J.
- Garden City, L. I., N. Y.
- Hibbing, Minn.
- Corsicana, Tex.
- Bay Shore, L. I., N. Y.
- Pelham Manor, N. Y.
- Wilmette, Ill.
- Lakewood, O.
- Racine, Wis.

M. W. Kellogg Company, Greenville, N. J.
Lefere Drop Forge Company, Jackson, Mich.
Louisiana Steel Products Corporation, Baton Rouge, La.
Louisville Water Works, Louisville, Ky.
Manufacturers Junction Ry. Company, Chicago, Ill.
Maywood Chemical Company, Maywood, N.J.
Merrimac Chemical Company, Everett, Mass.
Metals Refining Company, Hammond, Ind.
Michigan Alkali Company, Wyandotte, Mich.
Michigan Public Service Company, Traverse City, Mich.
Minnesota Steel Company, Duluth, Minn.
Missouri Utilities Company, Cape Girardeau, Mo.
Monsanto Chemical Company, East St. Louis Ill.
North Jersey District Water Supply Company, Wanaque, N. J.
Philadelphia Electric Company, Chester, Pa.
Philadelphia and Reading Coal and Iron Company, St. Nicholas, Pa.
Saint Ignatius School, Chicago, Ill., Auditorium
Sinclair Refining Company, Coffeyville, Kas.; Marcus Hook, Pa.; Houston, Tex.; East Chicago, Ind.
Smith Agricultural Chemical Company, Indianapolis, Ind.
Solvay Process Company, Detroit, Mich.; Syracuse, N. Y.
Somerville Iron Works, Somerville, N. J.
Southern Illinois Penitentiary, Menard, Ill.
Stephens-Adamson Manufacturing Company, Aurora, Ill.
Symington Company, Rochester, N. Y.
S. G. Taylor Chain Company, Hammond, Ind.
Texas Company, Claymont, Del.
Texas Utilities Company, Tuco, Tex.
Universal Atlas Cement Company, Buffington, Ind.; Atco, Tex.
Village of Wilmette, Ill., Pumping Station
Wabash Portland Cement Company, Osborn, O.
Worcester Salt Company, Silver Springs, N. Y.
Youngstown Sheet and Tube Company, Indiana Harbor, Ind.

City of Columbia, South Carolina, Market Sheds with over 25,000 sq. ft. of Federal Interlocking Slabs. This type of roof saves all cost of composition covering. Archt. Dept. of Eng'r'g.; Contr. Carolina Contracting Co.

STANDARD SPECIFICATIONS

Featherweight Concrete Channel Roof Slabs

● The roof decks are to be precast *Featherweight* Concrete Insulating Channel Slabs 2¾" deep for spans up to 6' 4" and 3½" deep or more for longer spans. The web thickness is to be a full one inch, composed of an approved brand of portland cement and the highest grade Haydite aggregate accurately graded and thoroughly mixed and vibrated so as to obtain the greatest possible density. Each leg is to be reinforced with one deformed bar accurately centered so as to have at least one-half inch of dense, impervious concrete on all sides. The web of the slab is to be reinforced with a sheet of galvanized welded wire mesh accurately placed.

All joints of the channel slabs are to be cemented on the upper side with an approved brand of asphaltic cement and the finished deck shall present a smooth surface ready for the application of the composition covering.

All slabs are to carry not less than 250 pounds per square foot, ultimate load uniformly distributed when resting on supports spaced the same as the purlins.

No warped, cracked or broken slabs are to be placed in the roof. All slabs to be as nearly perfect as good workmanship will permit.

All slabs to be natural water and air cured under cover where a constant temperature is maintained of not less than 65° F.

This contractor shall submit precast slab details based on the steel fabricator's shop drawings as well as the architect's design drawings for approval before proceeding with manufacture.

All slabs are to be erected by or under the supervision of the manufacturer in a thorough, workmanlike manner.

Featherweight Nailing Concrete Roof Slabs

● Where specified, the roof decks are to be precast *Featherweight* NAILING Concrete Flat Slabs of Haydite aggregate designed for the spans shown, with a top section of 1¼" of Nailing Concrete cast integral with the *Featherweight* concrete bottom section.

Each slab is to be reinforced with a sheet of galvanized cold drawn wire mesh accurately placed in the slab. The longitudinal wires shall be spaced not more than 1⅜" apart and cross wires not more than 2" apart woven around the longitudinal wires.

All slabs are to carry not less than 250 pounds per square foot ultimate load uniformly distributed when resting on supports spaced the same as the purlins.

All slabs are to be as nearly perfect as good workmanship will permit. No cracked, broken or warped slabs are to be placed in the roof.

All slabs are to be natural water and air cured under cover where a constant temperature is maintained of not less than 65° F.

This contractor shall submit precast slab details based on the steel fabricator's shop drawings as well as the architect's design drawings for approval before proceeding with manufacture.

All slabs are to be erected by or under the supervision of the manufacturer, in a thorough, workmanlike manner.

Featherweight Interlocking and Glass Insert Slabs

● Where specified, sloping roofs are to be *Featherweight* Reinforced Concrete Interlocking Slabs, the exposed surface of which is to present a smooth, permanent, red finish, and this color to penetrate the top one-half of the slab.

Each slab is to be reinforced with a sheet of galvanized cold drawn wire mesh accurately centered in the slab. The longitudinal wires to be spaced not more than 1⅜" apart and cross wires not more than 2" apart woven around the longitudinal wires.

The longitudinal joints to be cemented with a high grade oil cement and a weather cap coat of highest grade elastic compound. The lap or cross joint to be a squeeze joint of high grade oil cement.

All trimmings, such as ridge roll, flashing slabs, finishing slabs, sawtooth ridges and ventilator collar slabs of the same specification as above, are to be furnished as shown on the drawings.

All slabs are to carry not less than 250 pounds per square foot ultimate load uniformly distributed when resting on supports spaced the same as the purlins.

All slabs to be as nearly perfect as good workmanship will permit. No cracked, broken or warped slabs to be placed in the roof.

All slabs are to be natural water and air cured under cover where a constant temperature is maintained of not less than 65° F.

This contractor shall submit precast slab details based on the steel fabricator's shop drawings as well as the architect's design drawing for approval before proceeding with manufacture.

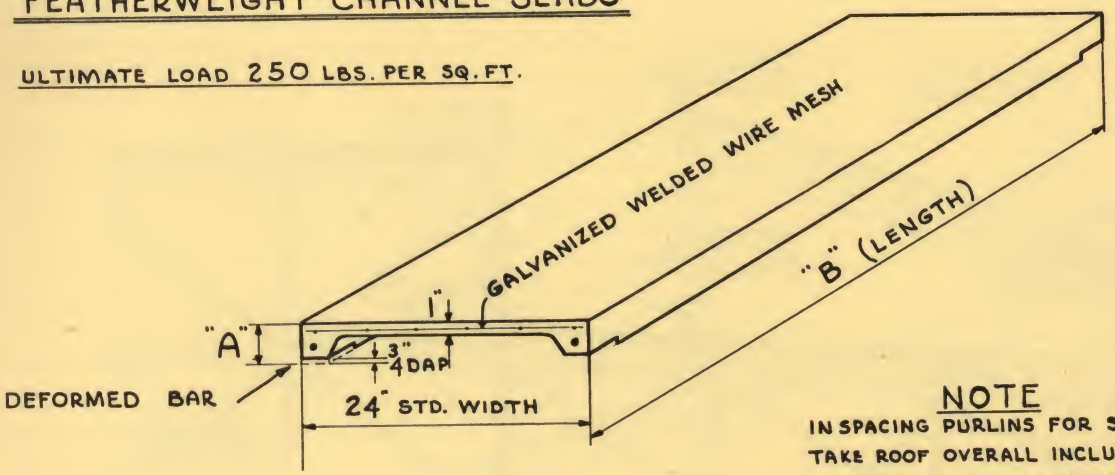
All slabs are to be erected by or under the supervision of the manufacturer in a thorough, workmanlike manner.

Where specified, top lighting shall be provided by Interlocking Slabs with ¼"x 21"x 35" wire glass inserts. Locate as shown on drawings.

CHANNEL SLAB DETAILS

FEATHERWEIGHT CHANNEL SLABS

ULTIMATE LOAD 250 LBS. PER SQ. FT.

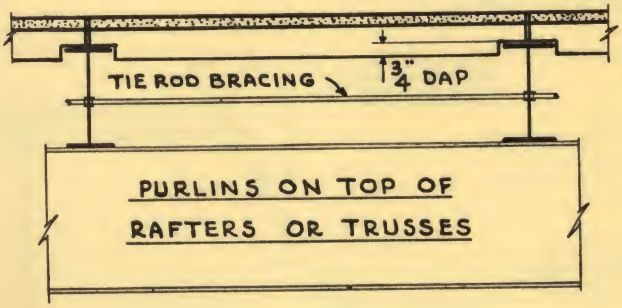


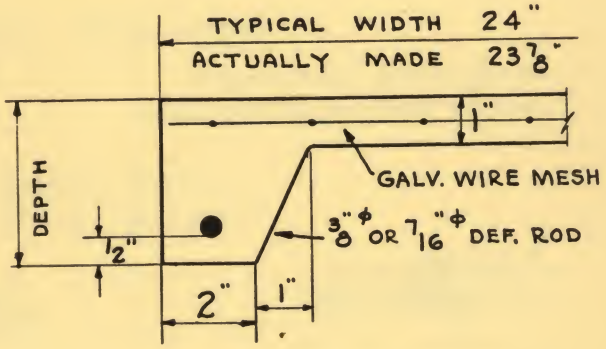
"A" DEPTH	"B" LENGTH	MAXIMUM LENGTH	WEIGHT PER SQ. FT.
2 3/4"	SEE NOTE	6'-4"	10 LBS.
3 1/2"	SEE NOTE	8'-4"	12 LBS.

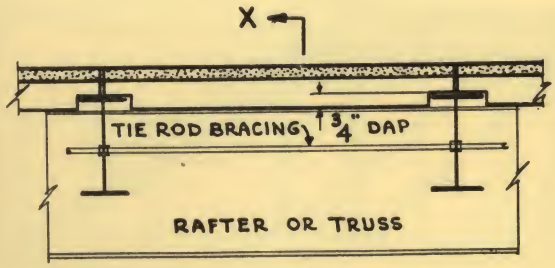
SLABS CAN BE FURNISHED FOR SPECIAL CONDITIONS

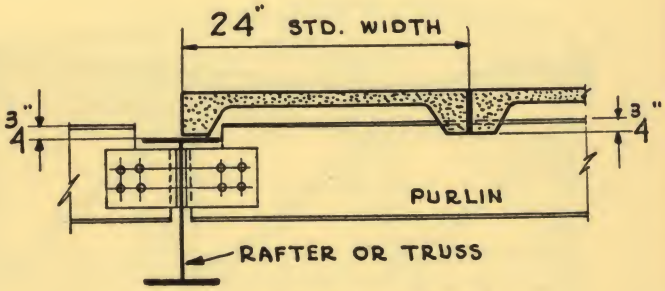
NOTE

IN SPACING PURLINS FOR SLABS TAKE ROOF OVERALL INCLUDING OVERHANG EQUALIZING SLAB LENGTHS. LENGTHS TO 6'-4" USE 2 3/4" DEPTH. LENGTHS OVER 6'-4" USE 3 1/2" DEPTH. AVOID COMBINATION OF BOTH DEPTH SLABS TOGETHER.





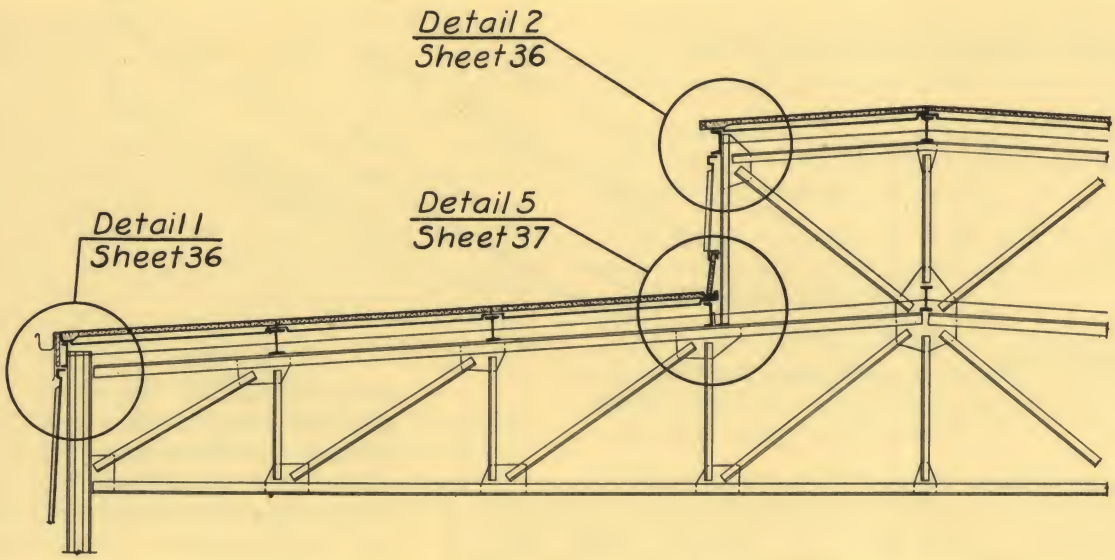




SECTION "X-X"

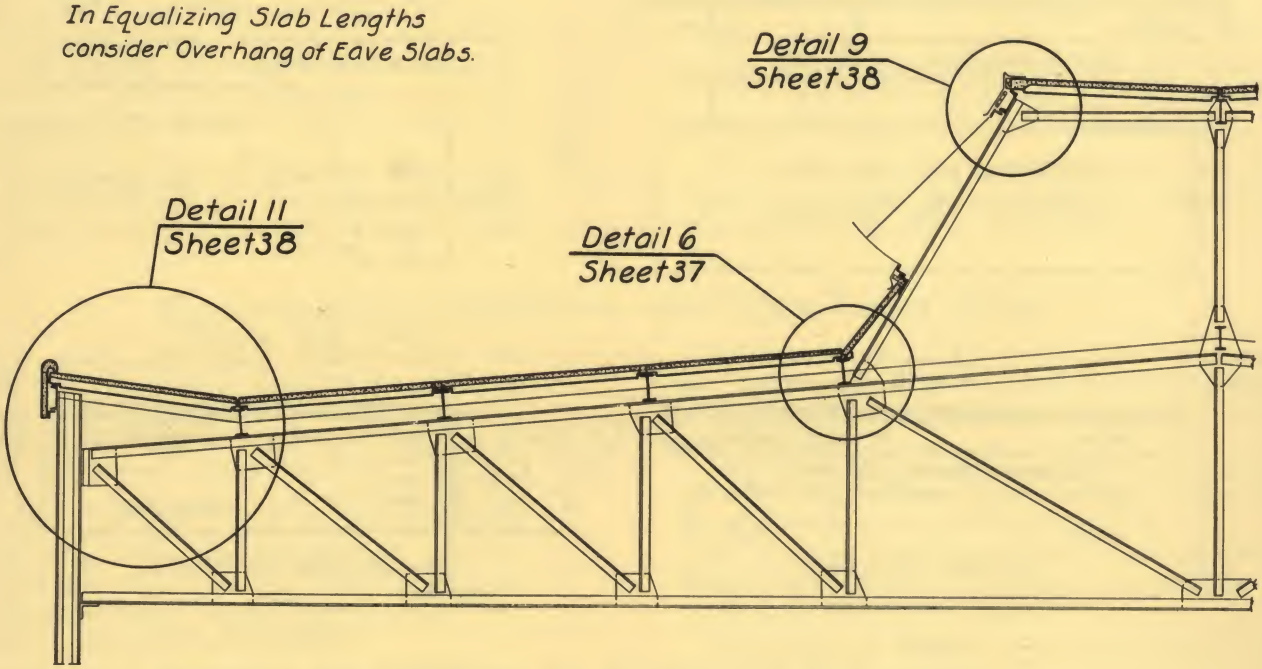
WHEN PURLINS FRAME TO RAFTERS OR TRUSSES
PLACE TOP OF PURLINS 3/4" ABOVE
(RAFTER ALSO USED FOR SLAB SUPPORT)

CHANNEL SLAB DETAILS



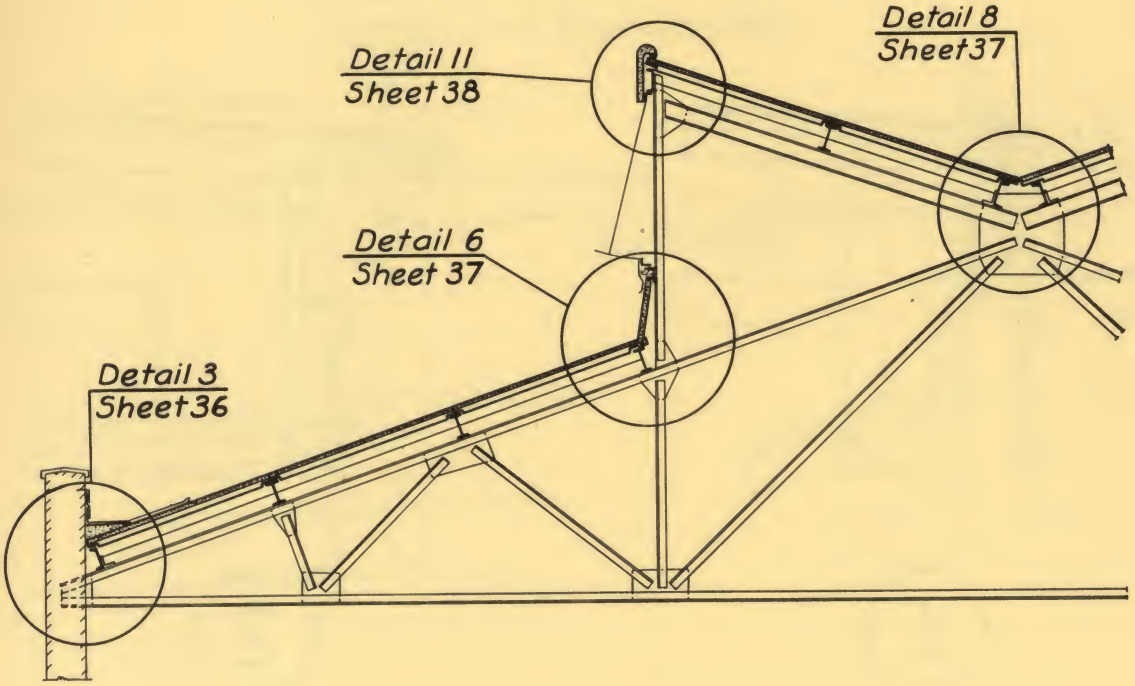
MONITOR TYPE ROOF

In Equalizing Slab Lengths
consider Overhang of Eave Slabs.



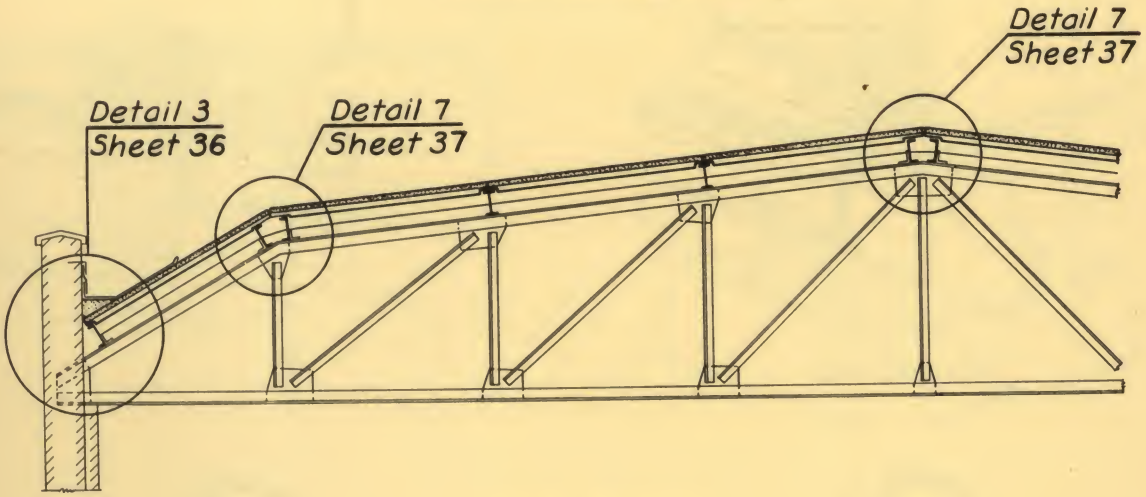
"A" FRAME MONITOR

CHANNEL SLAB DETAILS



INVERTED MONITOR

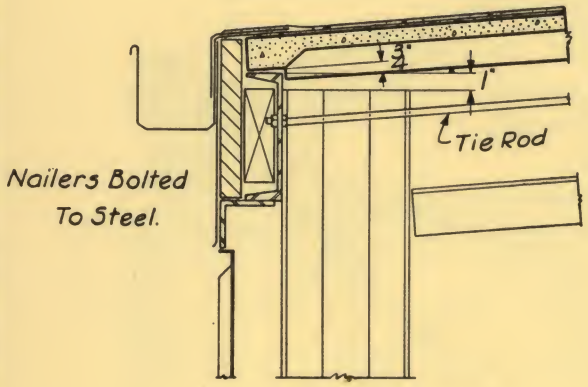
In Equalizing Slab Lengths
consider Overhang of Eave Slabs.



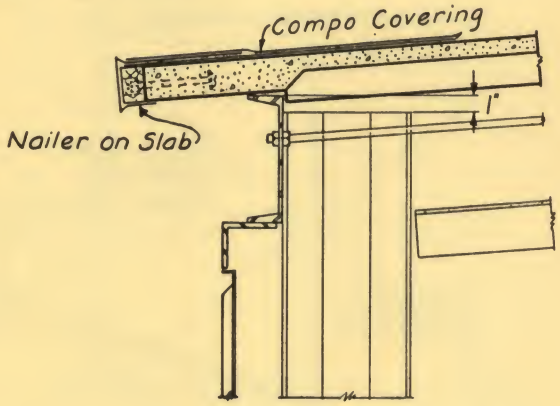
HIP ROOF

CHANNEL SLAB DETAILS

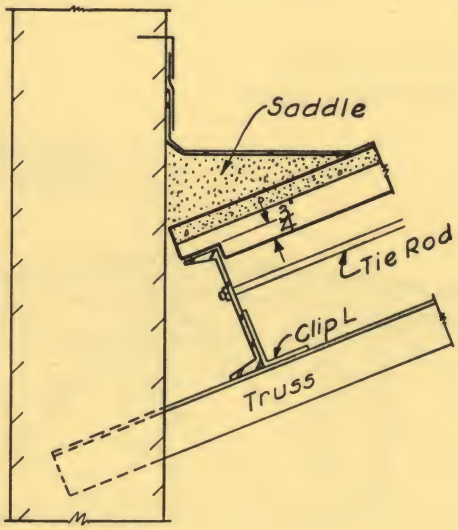
Note Stop Cols 1" Below Top of Purlins
Slabs Notched $\frac{3}{4}$" for Locking



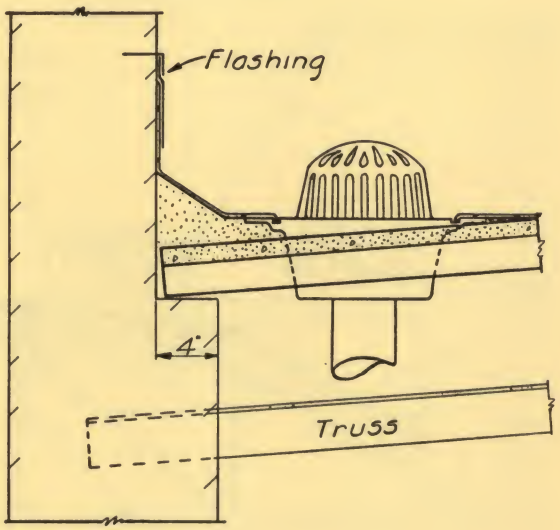
1



2

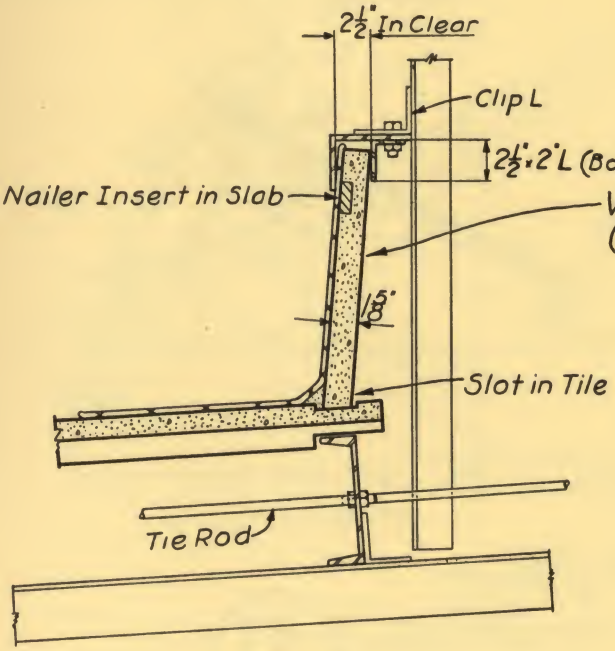


3

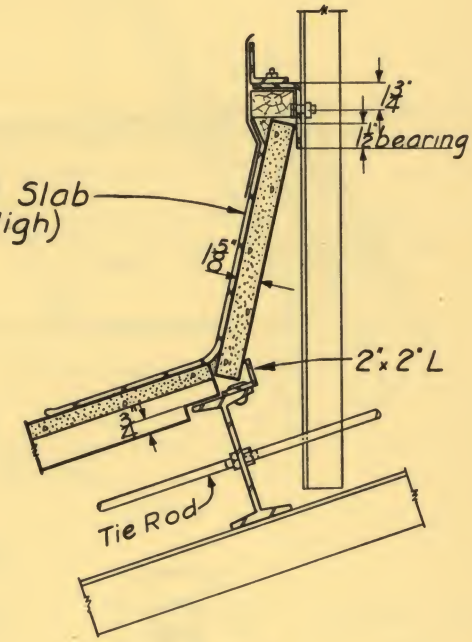


4

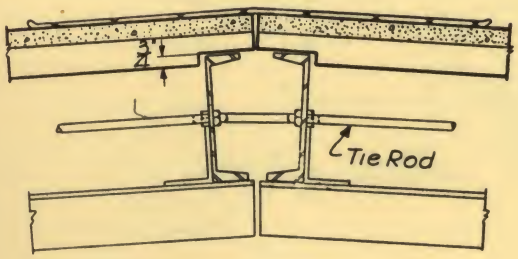
CHANNEL SLAB DETAILS



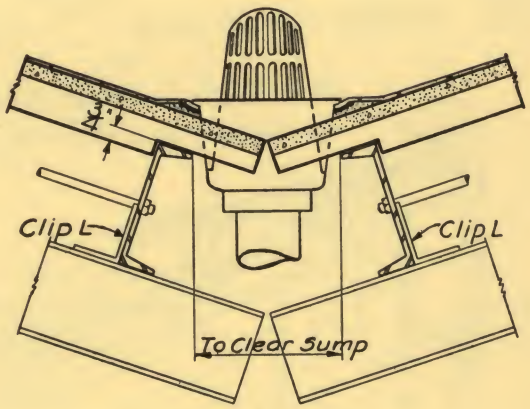
5



6

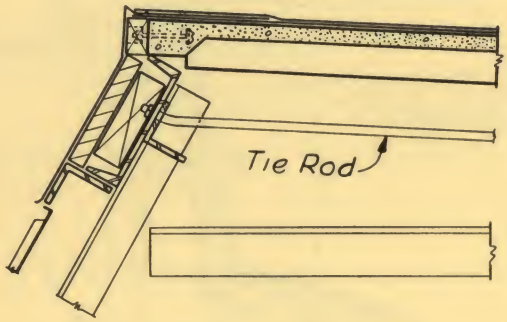


7

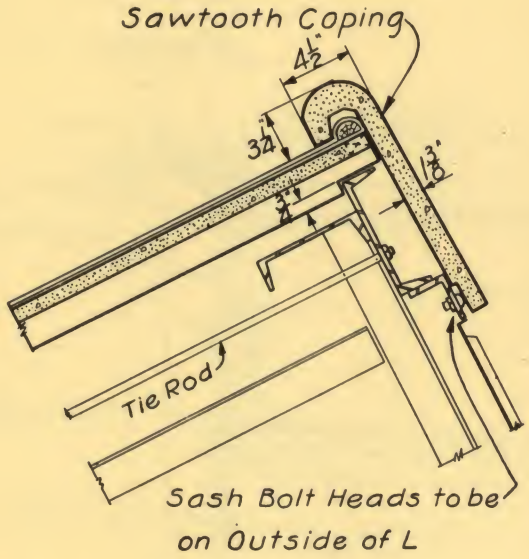


8

CHANNEL SLAB DETAILS

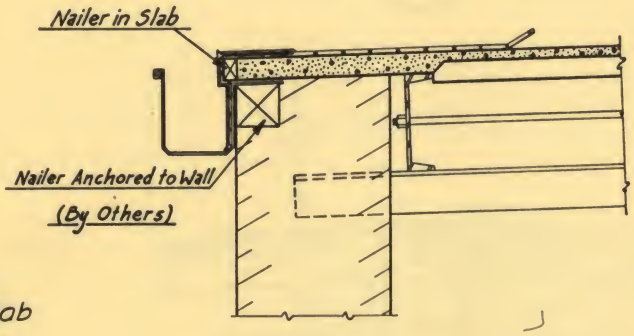


9

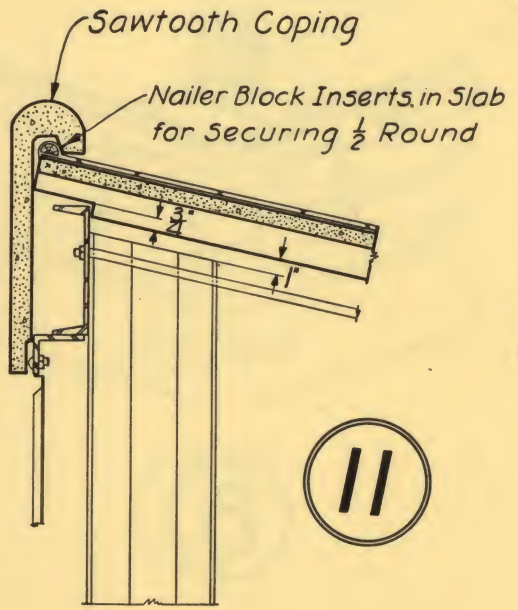


10

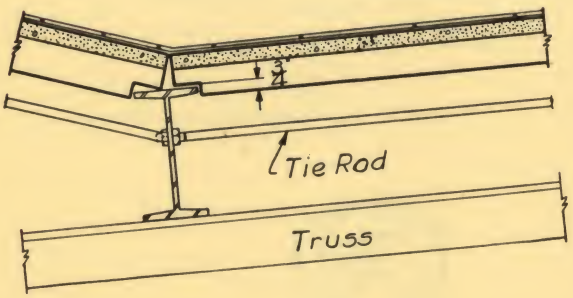
Brace Top Purlin
against Pull down
of Roof



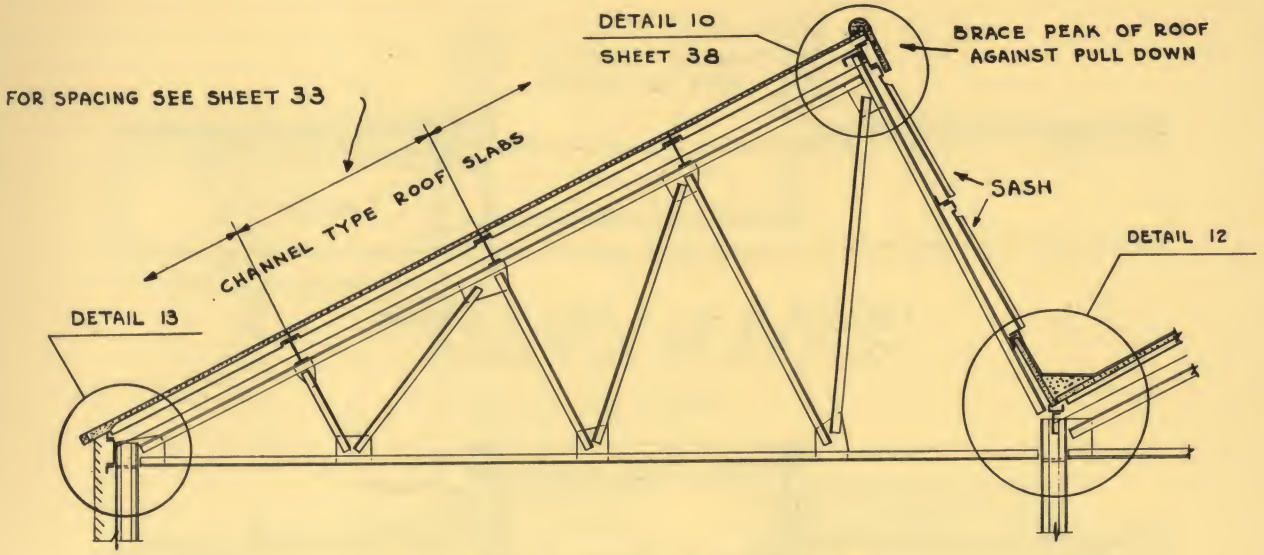
EAVE DETAIL



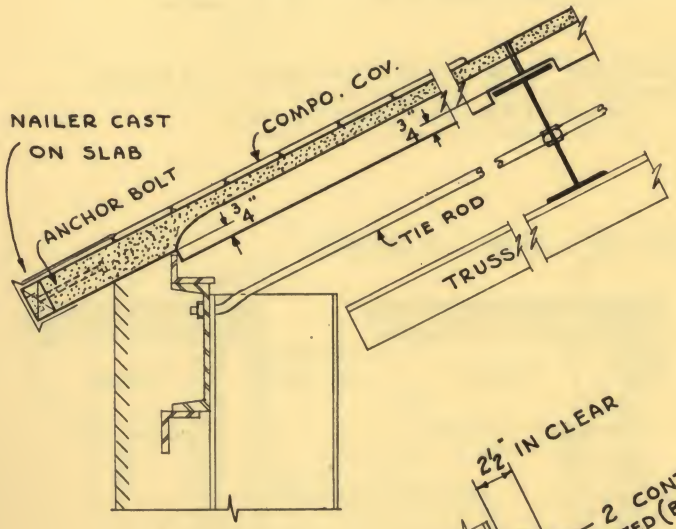
11



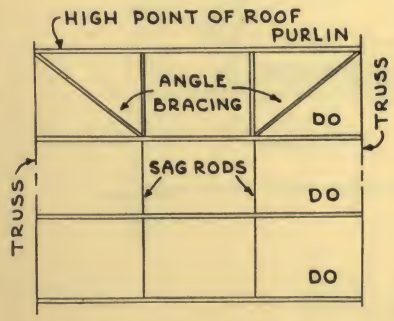
CHANNEL SLAB DETAILS



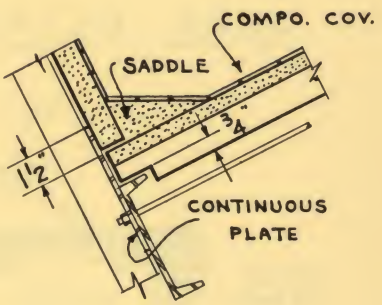
SAWTOOTH ROOF



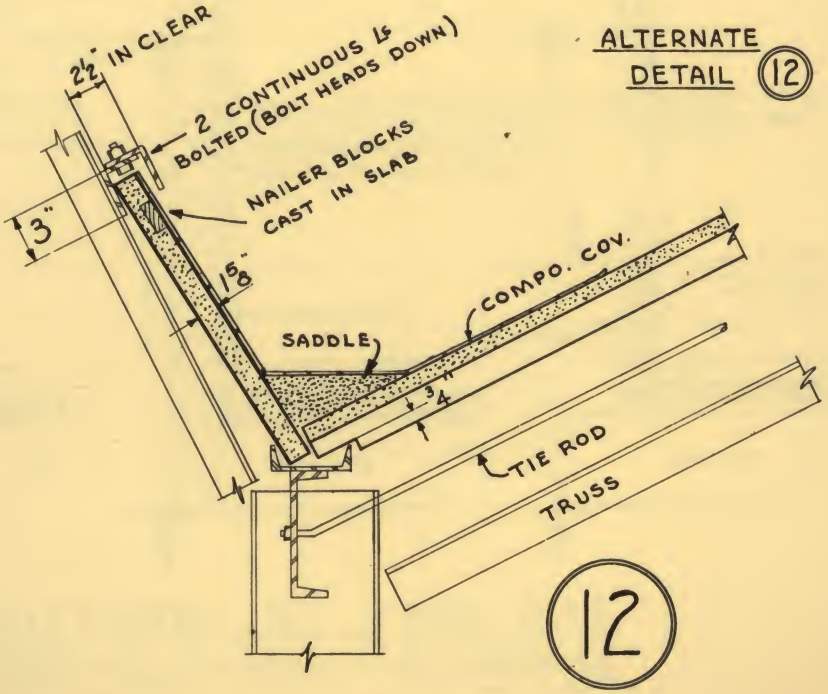
13



DIAGONAL TOP BRACING

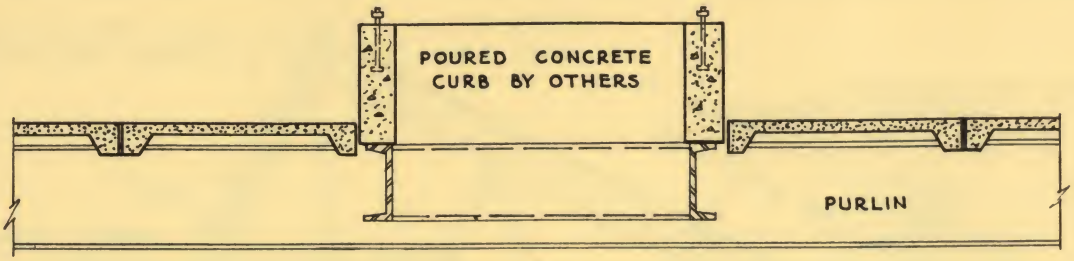


ALTERNATE DETAIL 12

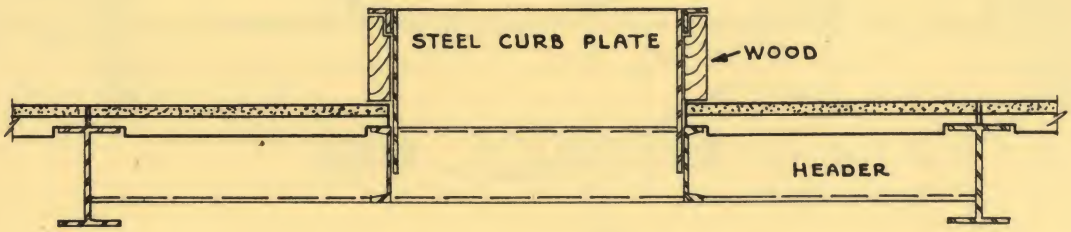


12

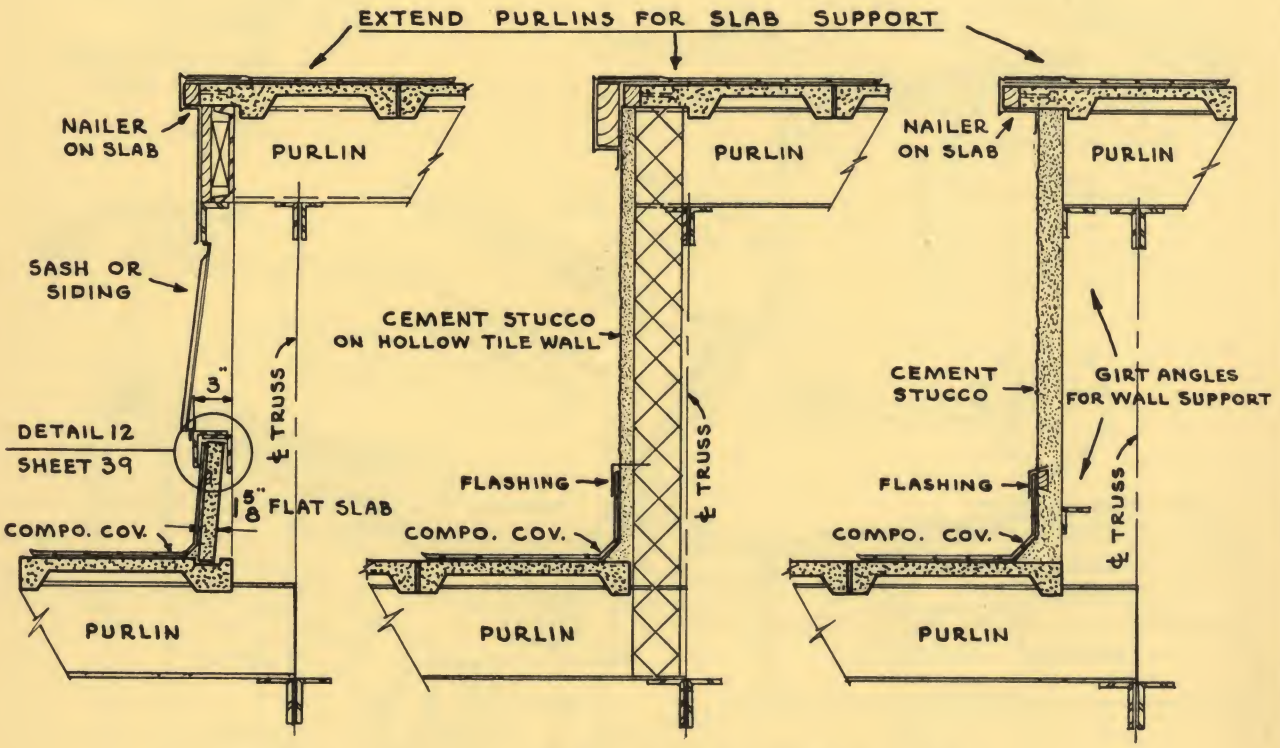
CHANNEL SLAB DETAILS



FRAMING ON ALL 4 SIDES OF OPENING
FLUSH WITH TOP LINE OF PURLINS

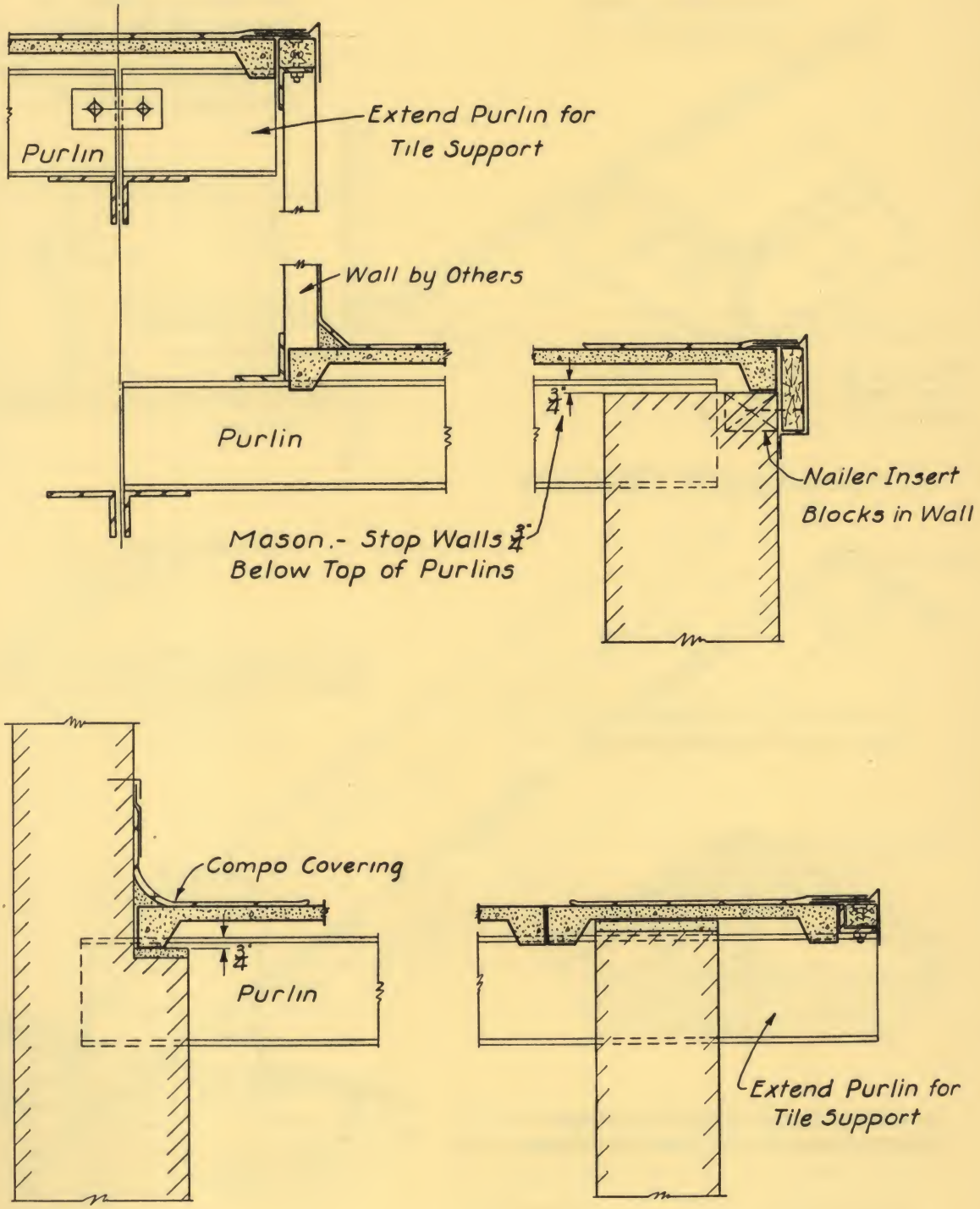


CURB DETAILS (OPENINGS FOR VENTILATORS, STACKS, SCUTTLES, SKYLIGHTS, ETC.)



END WALL OF MONITOR OR BETWEEN HIGH AND LOW BAYS

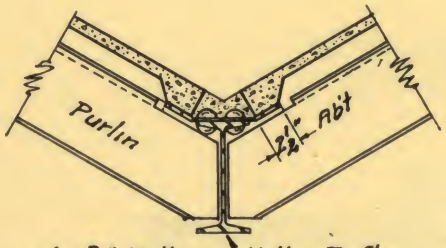
CHANNEL SLAB DETAILS



GABLE END DETAILS

CHANNEL SLAB DETAILS

Flatten Rivet Heads
to ¼" Top Side



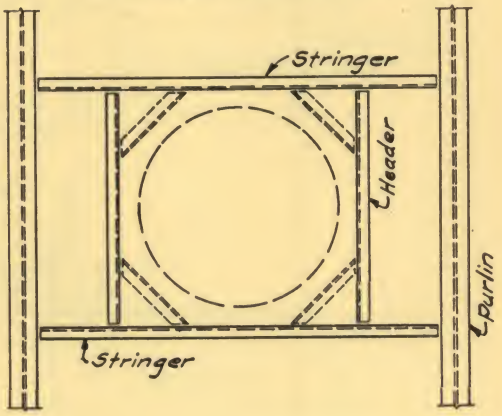
Provide $\frac{3}{16}$" Valley Plate When Flange of Rafter is Less Than 4"

Valley Rafter

TYPICAL VALLEY SECTION

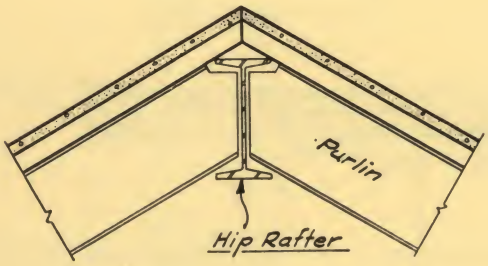
No Framing Needed For
Openings 24" Dia. or Less

Diagonal Members Needed For
Openings Over 42" Dia.



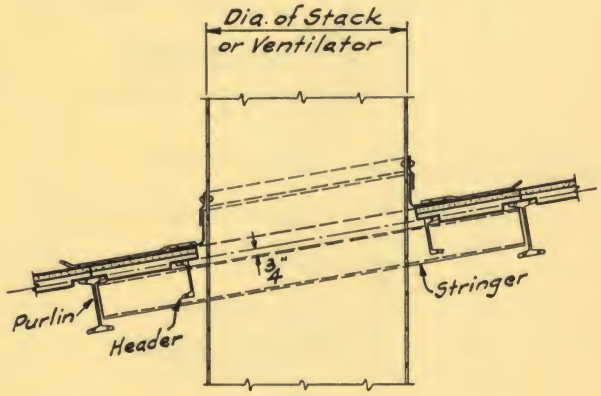
All Framing Flush Top With Purlins
Except Stringer Members to be $\frac{3}{4}$" Below

If channel hip rafter is used,
angle should be provided ⊥.



Top Line of Purlins to Intersect Outer
Edge of Hip Rafter to Support Roof Slabs

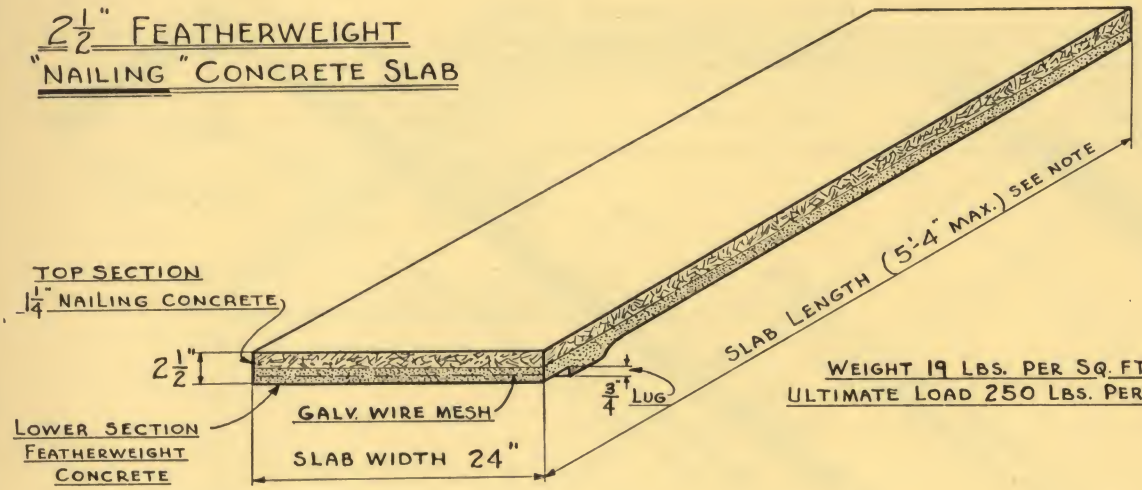
TYPICAL HIP SECTION



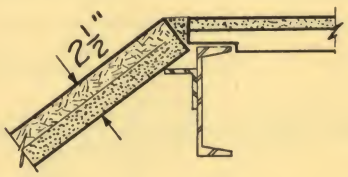
TYPICAL FRAMING AROUND
STACK OR VENTILATOR OPENINGS

NAILING CONCRETE SLAB DETAILS

2½" FEATHERWEIGHT "NAILING" CONCRETE SLAB



WEIGHT 19 LBS. PER SQ. FT.
ULTIMATE LOAD 250 LBS. PER SQ. FT.

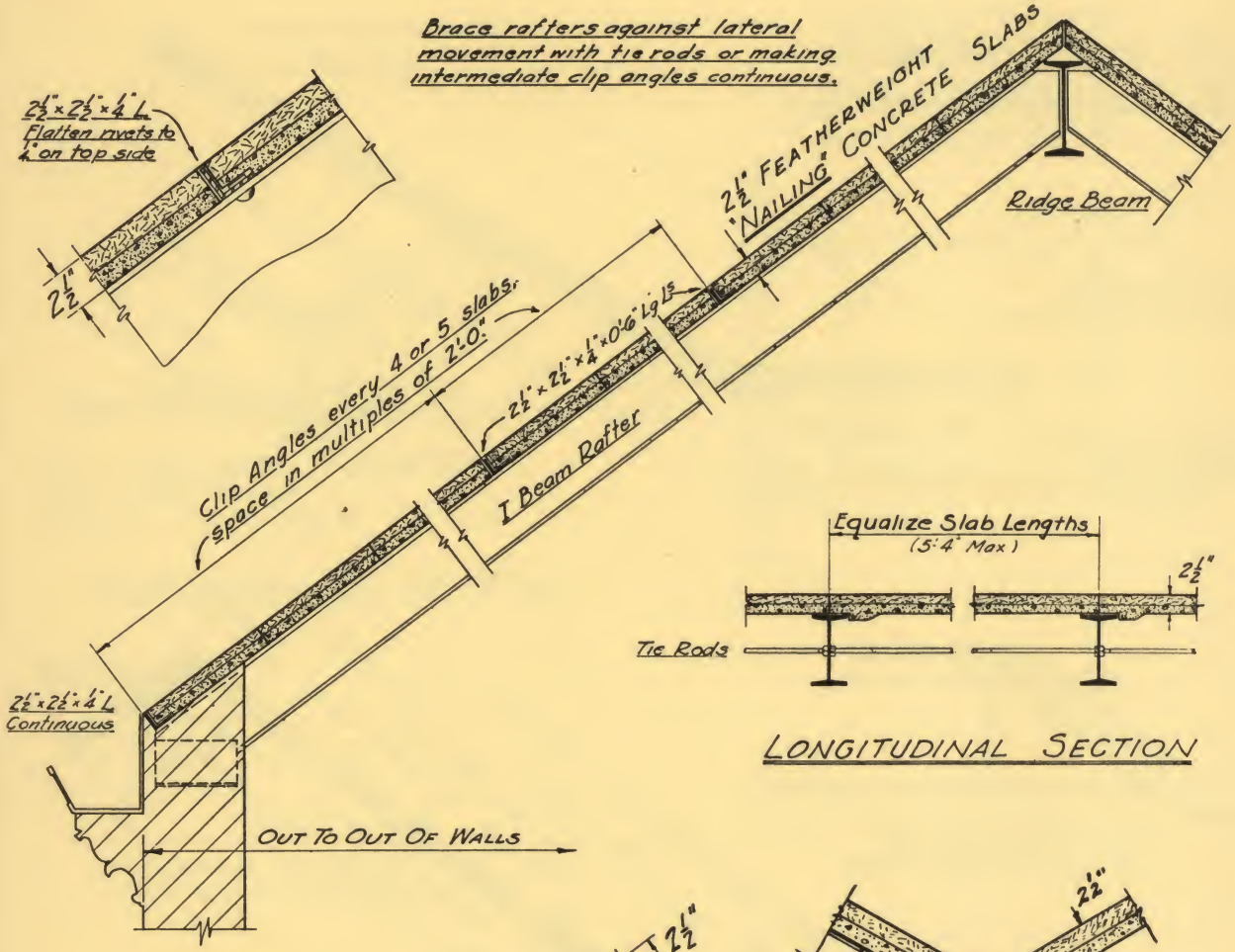


INTERSECTION OF SLOPING AND FLAT ROOF

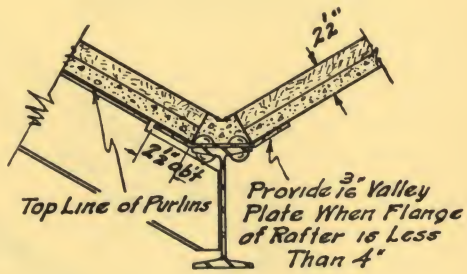
WHEN PURLINS FRAME INTO TRUSSES OR RAFTERS, FRAME ¾" ABOVE TO CLEAR LUGS ON SLABS

NOTE: EQUALIZE SLAB LENGTHS INCLUDING OVERHANG. PREFER LENGTHS 5'-0" AND UNDER BUT DO NOT EXCEED 5'-4". ALL SLABS TO 5'-4" LENGTHS MADE 2½" THICK. SPECIAL LENGTHS 2¾" THICK CAN BE MADE 5'-4" TO 6'-0" MAXIMUM. AVOID COMBINATION OF LONG AND SHORT LENGTHS

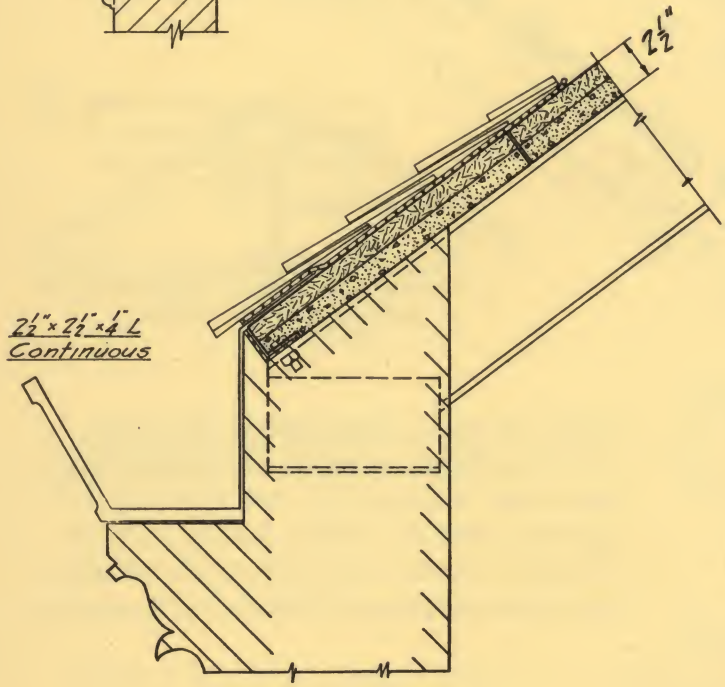
NAILING CONCRETE SLAB DETAILS

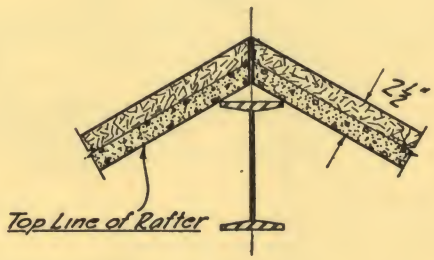


LONGITUDINAL SECTION



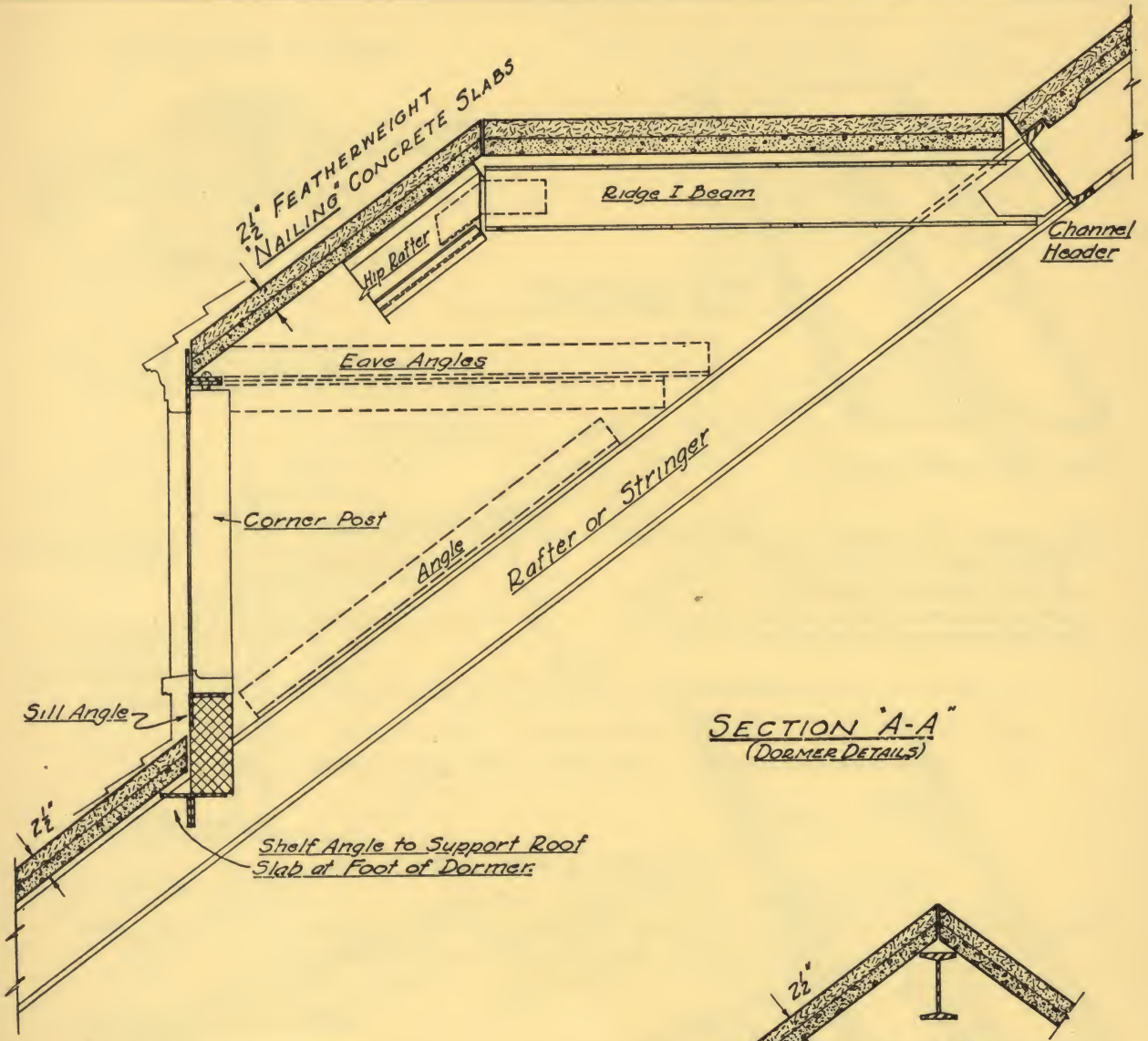
TYPICAL VALLEY SECTION



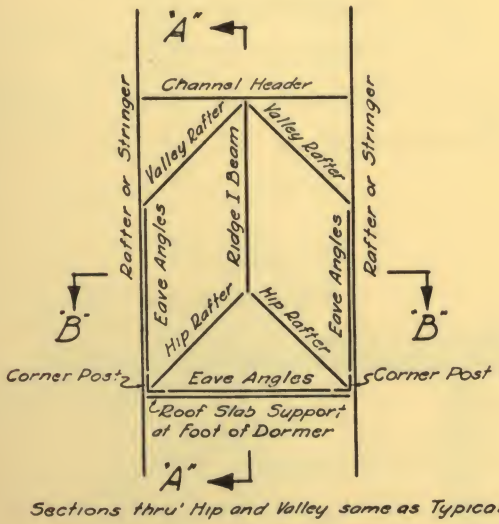


TYPICAL HIP SECTION

NAILING CONCRETE SLAB DETAILS

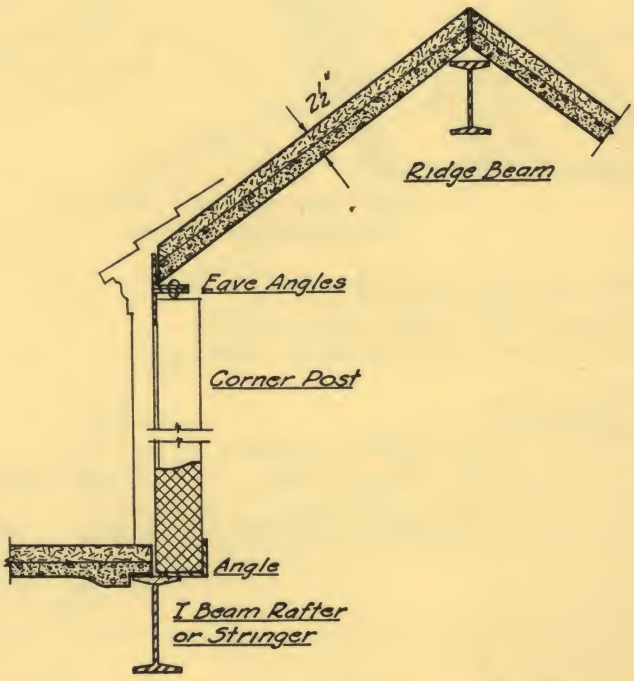


SECTION "A-A"
(DORMER DETAILS)



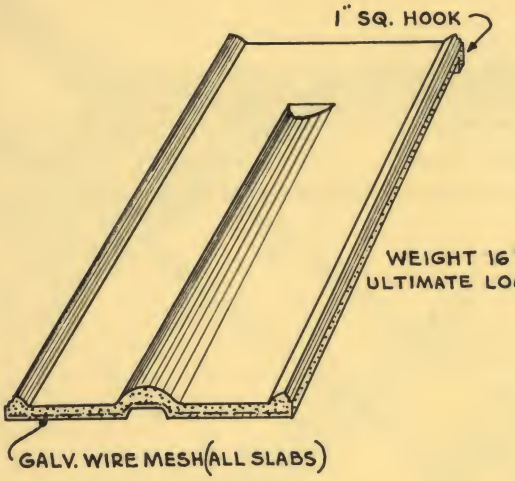
Sections thru' Hip and Valley same as Typical

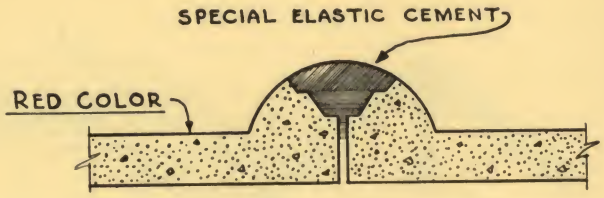
DORMER STEEL FRAMING PLAN



SECTION "B-B"
(DORMER DETAILS)

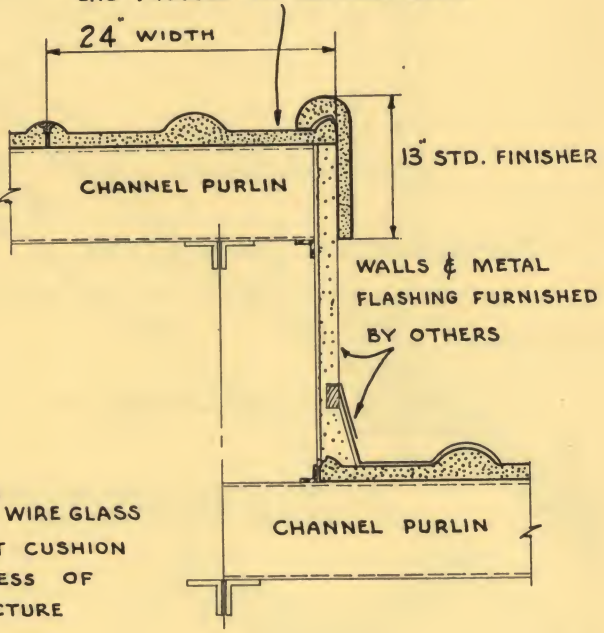
RED INTERLOCKING SLAB DETAILS

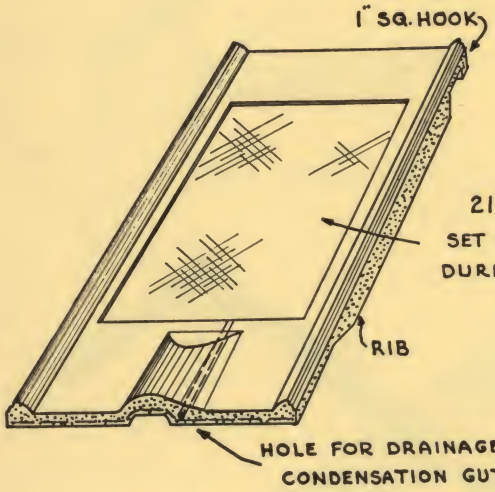




SECTION AT JOINT

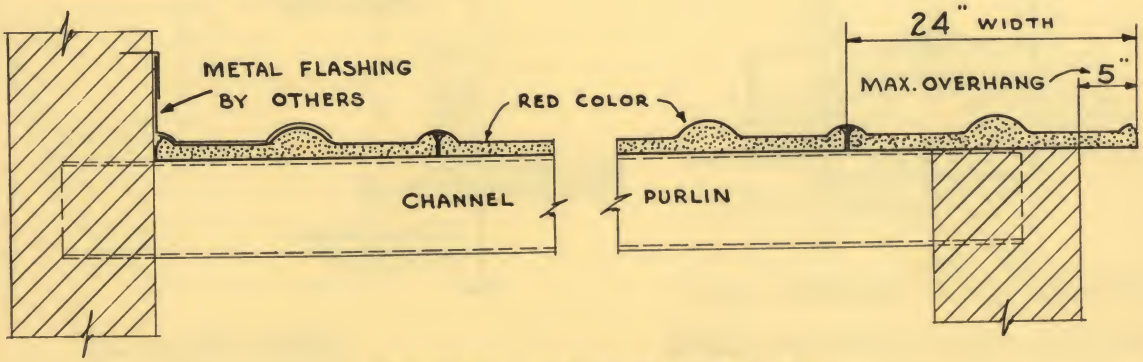
STD. SLAB 52" LONG - 24" WIDE - 1 1/8" THICK
(SPACE ROOF PURLINS 3'-9" TO 4'-0 1/2")
EXPOSED SURFACE OF SLABS AND TRIM
HARD WATERPROOF RED COLOR FINISH
(NO COMPOSITION COVERING REQUIRED)





NOTE - METAL FLASHING
RECOMMENDED IN
SEPARATE SHEETS FOR
LENGTH OF SLAB.

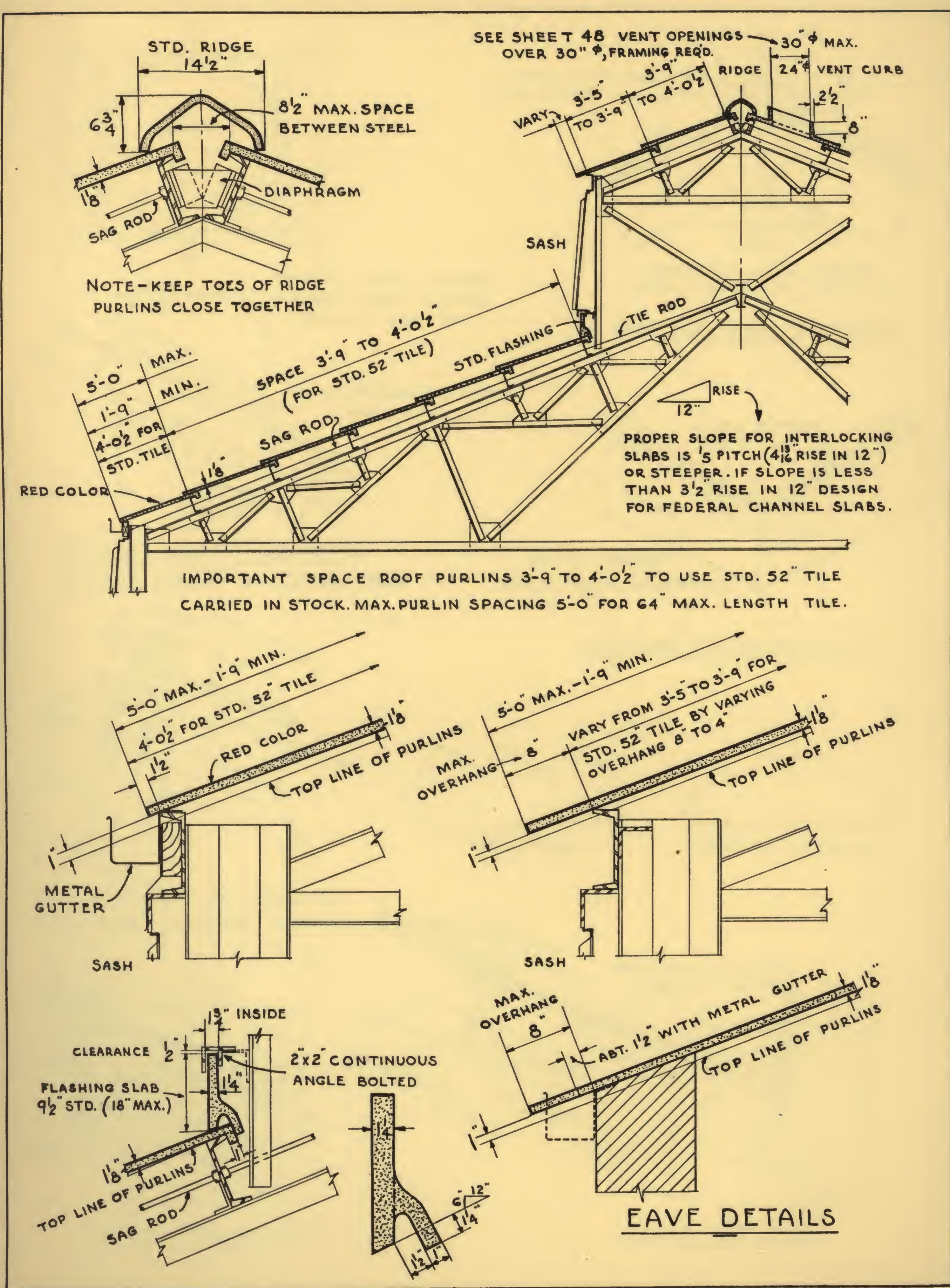
STD. GLASS SLAB 52" LONG - 24" WIDE
(SPACE ROOF PURLINS 3'-9" TO 4'-0 1/2")
(INTERCHANGEABLE WITH STD. SLABS)



GABLE END DETAILS

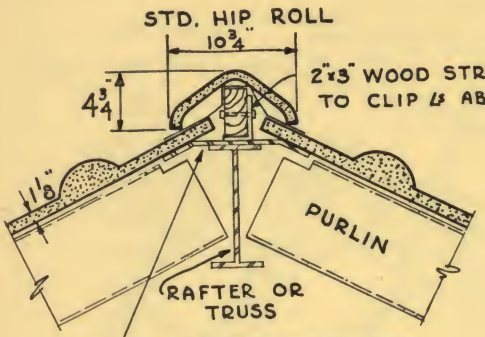
FEDERAL-AMERICAN CEMENT TILE CO. - CHICAGO

RED INTERLOCKING SLAB DETAILS

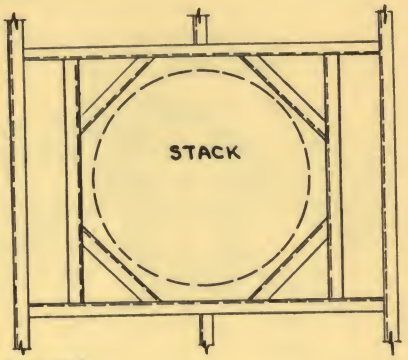


STD. RIDGE
14½"
6¾"
8½" MAX. SPACE BETWEEN STEEL
1⅛"
DIAPHRAGM
SAG ROD
NOTE – KEEP TOES OF RIDGE PURLINS CLOSE TOGETHER
SEE SHEET 48 VENT OPENINGS OVER 30" φ, FRAMING REQ'D.
30" φ MAX.
RIDGE
24" φ VENT CURB
2½"
8"
VARY
3'-5" TO 3'-9"
3'-9" TO 4'-0½"
SASH
TIE ROD
STD. FLASHING
5'-0" MAX.
1'-9" MIN.
4'-0½" FOR STD. TILE
SPACE 3'-9" TO 4'-0½" (FOR STD. 52" TILE)
SAG ROD
1⅛"
RED COLOR
RISE
12"
PROPER SLOPE FOR INTERLOCKING SLABS IS ⅕ PITCH (4 13/16" RISE IN 12") OR STEEPER. IF SLOPE IS LESS THAN 3½" RISE IN 12" DESIGN FOR FEDERAL CHANNEL SLABS.
IMPORTANT SPACE ROOF PURLINS 3'-9" TO 4'-0½" TO USE STD. 52" TILE CARRIED IN STOCK. MAX. PURLIN SPACING 5'-0" FOR 64" MAX. LENGTH TILE.
5'-0" MAX. – 1'-9" MIN.
4'-0½" FOR STD. 52" TILE
RED COLOR
1½"
1⅛"
TOP LINE OF PURLINS
1"
METAL GUTTER
SASH
5'-0" MAX. – 1'-9" MIN.
VARY FROM 3'-5" TO 3'-9" FOR STD. 52" TILE BY VARYING OVERHANG 8" TO 4"
MAX. OVERHANG
8"
1⅛"
TOP LINE OF PURLINS
1"
SASH
1¾" INSIDE
CLEARANCE ½"
2"x2" CONTINUOUS ANGLE BOLTED
1¼"
FLASHING SLAB 9½" STD. (18" MAX.)
1⅛"
TOP LINE OF PURLINS
SAG ROD
1¼"
6
12"
1¼"
1½"
1"
MAX. OVERHANG 8"
ABT. 1½" WITH METAL GUTTER
1⅛"
TOP LINE OF PURLINS
1"
EAVE DETAILS

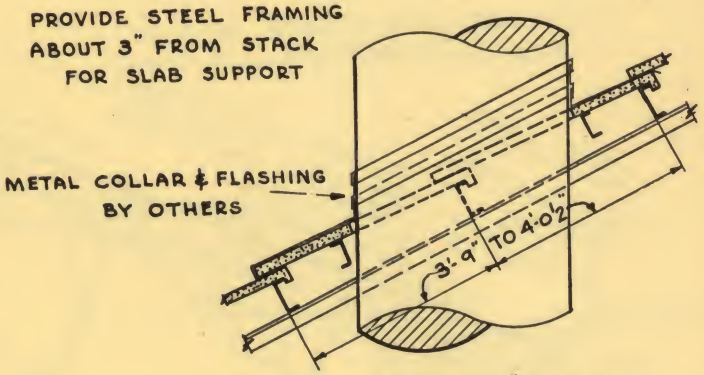
RED INTERLOCKING SLAB DETAILS



TYPICAL "HIP" SECTION

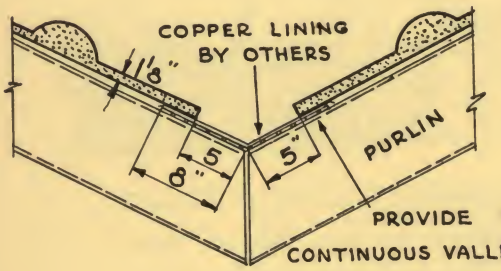


PROVIDE STEEL FRAMING ABOUT 3" FROM STACK FOR SLAB SUPPORT

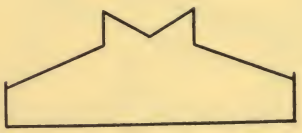


TYPICAL "STACK" FRAMING

LARGE VENTILATOR FRAMING SIMILAR

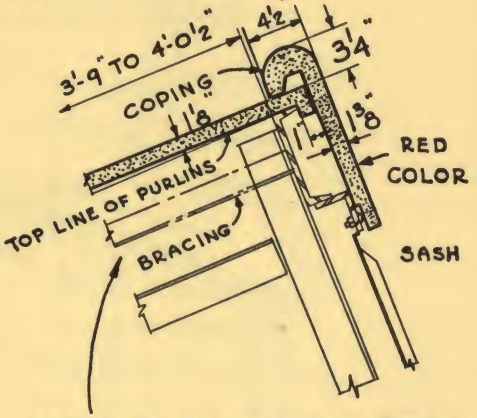


TYPICAL "VALLEY" SECTION

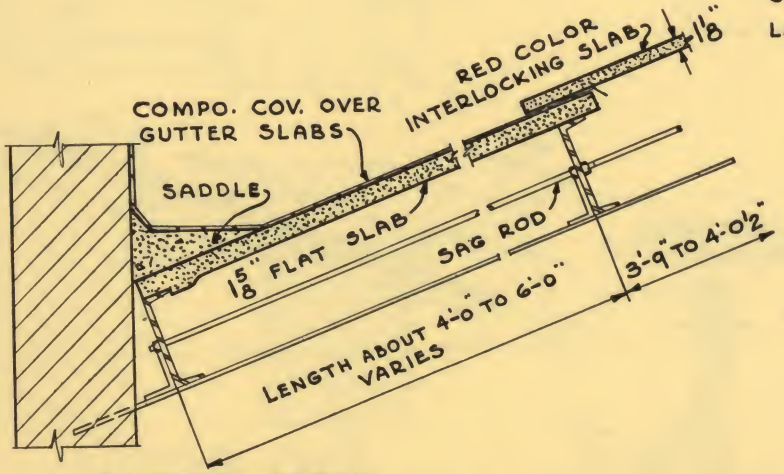


INVERTED MONITOR

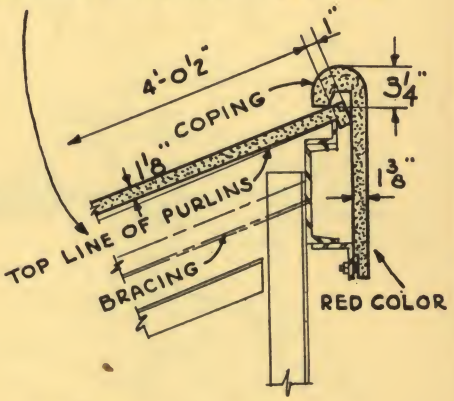
SAWTOOTH



SEE SHEET 39 FOR DETAIL OF LATTICE DIAGONAL BRACING



GUTTER DETAIL



SAWTOOTH COPING

FEDERAL-AMERICAN CEMENT TILE CO.